

**From:** Bastek, Brian  
**Sent:** 6 Apr 2017 17:40:57 +0000  
**To:** Holtzclaw, Brian; Bing, Leann  
**Subject:** RE: Validated data  
**Attachments:** Grenada VI Sampling Investigation Report16-0574.pdf, FINAL REPORT Grenada Manufacturing Report 17-0050.pdf, 1-Facility Interim Air Monitoring Plan\_FINAL\_Complete.pdf

Leann,

I think I owe you these 2 reports as well from sampling in Eastern Heights. Plus, I'm attaching the most recent work plan (draft) which includes all recent VI data from the main plant building.

Brian Bastek  
Environmental Engineer  
U.S. EPA, Region 4  
RCRA Corrective Action and Permitting Section  
Resource Conservation and Restoration Division  
61 Forsyth Street, SW  
Atlanta, GA 30303  
404-562-8511  
[bastek.brian@epa.gov](mailto:bastek.brian@epa.gov)

**From:** Holtzclaw, Brian  
**Sent:** Thursday, April 06, 2017 11:17 AM  
**To:** Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>  
**Cc:** Bastek, Brian <[Bastek.Brian@epa.gov](mailto:Bastek.Brian@epa.gov)>  
**Subject:** FW: Validated data

Leann:

This concerns the facility VI investigation in early March 2017. Brian

**From:** Anderson, Meredith  
**Sent:** Friday, March 31, 2017 1:17 PM  
**To:** Norman, Michael <[Norman.Michael@epa.gov](mailto:Norman.Michael@epa.gov)>; Holtzclaw, Brian <[Holtzclaw.Brian@epa.gov](mailto:Holtzclaw.Brian@epa.gov)>; Newman, Keriema <[Newman.Keriema@epa.gov](mailto:Newman.Keriema@epa.gov)>; Verduin, Jeanette <[Verduin.Jeanette@epa.gov](mailto:Verduin.Jeanette@epa.gov)>; Bentkowski, Ben <[Bentkowski.Ben@epa.gov](mailto:Bentkowski.Ben@epa.gov)>; Adams, Glenn <[Adams.Glenn@epa.gov](mailto:Adams.Glenn@epa.gov)>  
**Subject:** FW: Validated data

FYI

**From:** Ellis, John [<mailto:John.Ellis@arcadis.com>]  
**Sent:** Friday, March 31, 2017 9:19 AM  
**To:** Anderson, Meredith <[Anderson.Meredith@epa.gov](mailto:Anderson.Meredith@epa.gov)>  
**Cc:** David O'Connor ([david.oconnor@meritor.com](mailto:david.oconnor@meritor.com)) <[david.oconnor@meritor.com](mailto:david.oconnor@meritor.com)>; Bastek, Brian <[Bastek.Brian@epa.gov](mailto:Bastek.Brian@epa.gov)>  
**Subject:** RE: Validated data

Meredith,

Attached are the validation reports and the analytical data packages.

Please let us know if you need anything else.

Thanks,  
John

**From:** Anderson, Meredith [<mailto:Anderson.Meredith@epa.gov>]  
**Sent:** Friday, March 31, 2017 7:46 AM  
**To:** David O'Connor ([david.oconnor@meritor.com](mailto:david.oconnor@meritor.com)) <[david.oconnor@meritor.com](mailto:david.oconnor@meritor.com)>; Ellis, John  
<[John.Ellis@arcadis.com](mailto:John.Ellis@arcadis.com)>  
**Subject:** Validated data

Would you be able to forward your email with validated data to me? Brian and Stephen are both out of the office. Thanks!  
Meredith

Meredith C. Anderson  
Environmental Engineer  
Chief, RCRA Corrective Action and Permitting Section  
RCRA Cleanup and Brownfields Branch  
Resource Conservation and Restoration Division  
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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4**


Science and Ecosystem Support Division  
Field Services Branch  
980 College Station Road  
Athens, Georgia 30605-2720

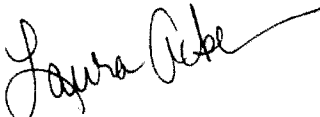
December 20, 2016

**4SESD-EIB**

**MEMORANDUM**

**SUBJECT:** Grenada Manufacturing Vapor Intrusion Investigation (a.k.a. Rockwell International Wheel and Trim) – Final Report  
Grenada, Mississippi  
SESD Project No. 16-0547

**FROM:** Landon Pruitt, Environmental Engineer   
Superfund and Air Section

**THRU:** Laura Ackerman, Chief   
Superfund and Air Section

**TO:** Brian Bastek, Project Manager  
RCRD Division, USEPA Region 4  
61 Forsyth St. SW, Atlanta, GA 30303-8960

Attached is the final report for the vapor intrusion study conducted at the Grenada Manufacturing site in Grenada, MS. The investigation occurred during the week of September 1, 2016. If you have any questions or comments please contact me at [pruitt.landon@epa.gov](mailto:pruitt.landon@epa.gov) or 706-355-8620.

Attachment

**Project ID: 16-0547**

# **Grenada Manufacturing Vapor Intrusion Investigation (a.k.a. Rockwell International Wheel and Trim) – Final Report**

**Grenada, MS**

**Project Date: September 2016**

**Project Leader: Landon Pruitt**  
Superfund and Air Section  
Field Services Branch  
Science & Ecosystem Support Division  
USEPA – Region 4  
980 College Station Road  
Athens, Georgia 30605-2720

*The activities depicted in this report are accredited under the US EPA Region 4 Science and Ecosystem Support Division ISO/IEC 17025 accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation AT-1644.*



Science & Ecosystem Support Division



**Requestor:**

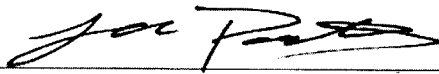
**Brian Bastek**  
RCRD Division  
61 Forsyth St. SW  
Atlanta, GA 30303-8960

**Analytical Support:**

**Analytical Services Branch**  
SESD  
980 College Station Rd  
Athens, GA 30605-2720

**Approvals:**

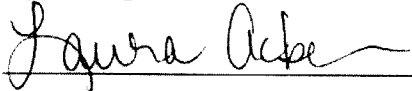
**SESD Project Leader:**



Landon Pruitt  
Superfund and Air Section  
Field Services Branch

12/20/16  
Date

**Approving Official:**



Laura Ackerman, Chief  
Superfund and Air Section  
Field Services Branch

12/21/16  
Date

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FINAL Analytical Report – VOC Air (18 pages)	
Field Sampling Logbook 1 of 1 (13 pages)	
Air Chain of Custody – No. 09/22/16-0001 (1 pages)	

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## 1.0 Introduction

This document was prepared for the purpose of reporting the results of a vapor intrusion investigation conducted by the USEPA Science and Ecosystem Support Division (SESD) at the Grenada Manufacturing Site in Grenada, MS. The site is an active facility located at 635 Hwy 332, in Grenada, MS. The investigation was conducted in September 2016 and the samples were analyzed by the USEPA Analytical Services Branch (ASB).

A previous investigation performed at this site, 16-0323, detected elevated concentrations of benzene in the indoor air of [REDACTED] in the Eastern Heights neighborhood. This sampling event is intended to repeat the sampling at that location and inform the Project Manager (PM) Brian Bastek, EPA Region 4, of a potential pathway of indoor air contaminants. The data generated by the investigation and represented in the subsequent sections will be evaluated by the EPA Region 4 PM. Air results will be compared to screening levels calculated by the contractor Arcadis. Decisions for future actions on the site will be made by the PM.

The following personnel participated in the investigation:

<u>Name</u>	<u>Organization</u>	<u>Duties</u>
Landon Pruitt	Reg. 4 EPA/SESD	Project Leader, Sampler, Sample Processing, Safety Officer
Don Fortson	Alion/ESAT	Sampler

## 2.0 Site Background

The manufacturing facility was constructed by Lyon in 1961 and sold to Rockwell International Corporation (Rockwell) in 1966. Rockwell's Automotive Division operated a wheel cover manufacturing facility at the site from 1966 to 1985 when the plant and property were sold to Textron Automotive Company (Textron), formerly Randall Textron. The Automotive Division was spun off from Rockwell in 1997 to form Meritor. In 1999, Textron sold the operations and property to Grenada Manufacturing, LLC (Grenada Manufacturing), who continued to operate the wheel cover plant until 2008 when portions of the plant and property were leased to ICE Industries, Inc. (ICE). Throughout most of the site history, the facility was used to manufacture automobile wheel covers. Following ICE's lease of the premises, the facility was converted to a stamping plant, providing stamp-formed parts for various industries.

Since 1989 EPA has been involved with the site and there have been a number of investigations and sampling events to discover and delineate a trichloroethene (TCE) contaminated groundwater plume and possible vapor intrusion and other air quality issues. There are several areas of concern that are potential sources for the contamination including several lagoons, an above ground storage tank (TCE), a below ground storage tank (toluene), an on-site landfill, and a waste water treatment plant.

### **3.0 Summary**

Indoor air and a sub-slab soil gas samples were collected at the [REDACTED] house as well as five surrounding ambient air samples during this investigation. All samples were analyzed for the VOCs represented in Table 2 at ASB lab in Athens, GA. Several VOCs were detected in the indoor air sample including benzene, the contaminant of concern for this investigation. Benzene, chloroform and tetrachloroethene (PCE) were detected at low levels in the soil gas sample below the home.

Several VOCs were also detected in the ambient air samples taken outside the home, with TCE being the major constituent. Benzene was also detected above screening levels in four out of five samples, with the two higher concentrations on either side of the home.

### **4.0 Results and Discussion**

All sampling results can be seen in the lab analytical reports in Appendix C, and summarized in Figure 1 in Appendix A and Table 3 in Appendix B.

#### **4.1 Indoor Air Sampling**

Two indoor air samples (duplicate location) were collected at the same time and in the same location inside [REDACTED]. Several VOCs were detected in the indoor air sample with benzene, chloroform, ethyl benzene, and trichloroethene (TCE) being detected above screening levels. Benzene was detected at 47 ug/m<sup>3</sup> (and 48 ug/m<sup>3</sup> duplicate), while the other VOC detections indoors were very low.

#### **4.2 Soil Gas Sampling**

Two sub-slab soil gas samples (split location) were collected below the [REDACTED] residence. Benzene, chloroform and tetrachloroethene (PCE) were detected at low levels in the soil gas sample.

#### **4.3 Ambient Air Sampling**

Five ambient air samples were collected during the 24 hour period in which the indoor sample was taken. Several VOCs were detected in the ambient air samples taken outside the home, with TCE being the major constituent. TCE was detected in all five ambient samples ranging from 1.5 to 3.4 ug/m<sup>3</sup>. The highest detection was in the western most sample, decreasing as you move east and south across the neighborhood. Benzene was also detected above screening levels in four out of five samples, with the two higher concentrations on either side of the home.

#### **Field Observations**

Prior to and during the collection of ambient air samples, several rail car tankers carrying liquid petroleum product, were parked just north of the site and in between the site and

the neighborhood. These tankers, with DOT Placard 1075, have pressure release vents that can/will open whenever they are needed. There was a great deal of automobile traffic throughout the neighborhood and off of Hwy 332 near several of the ambient air sample locations. Diesel and gas combustion byproducts as well as the venting of the tank cars likely contributed to the samples, possibly causing minimum reporting limits (MRLs) to be elevated for some analyses.

### **Meteorological Data**

SESD personnel set up and gathered data from a meteorological station in between the site and the neighborhood. The exact location of the meteorological station can be seen in Figure 1 in Appendix A. The raw data can be seen in Table 4 in Appendix B. For the first eight hours of the 24-hour sample collections, the wind blew mostly out of the northeast, then for the remaining 16 hours blew mostly out of the west. Below is a wind rose built from the data collected by the met station.

## **5.0 Field Quality Control**

Analytical results associated with quality control samples are presented in Appendix B. Trip blank results can be seen in analytical results in Appendix C.

Air trip blanks were prepared by the ASB lab, transported in the sampling vehicles, and handled the same as each air sample. There were no detections above the MRLs in trip blanks.

A co-located duplicate indoor air sample as well as a sub-slab soil gas split sample were collected at station GM123. The same analytes were detected in the primary samples versus the duplicate samples except for one, vinyl chloride (VC) in the indoor air. The detected amount of VC was below the MRL for VC in this sample, and therefore an estimated number. Absolute values of relative percent difference (RPD) of the two samples were between 0.00 and 27.37 %. The majority of detections in the QC samples were estimated values (J-flagged) because of the low detection needs of the project. Among the non-estimated values, the RPD values were between 0.00 and 2.00%. The RPD values can be seen in Table 5 in Appendix B. RPDs were calculated using the following equation:

$$RPD = \frac{\text{Split Sample Result} - \text{Primary Sample Result}}{\text{Average of Split and Primary Sample Results}} * 100\%$$

When working with screening levels as low as requested for this project, estimated analytical result values and RPD values for splits and duplicates of this nature are common. The RPD values should not adversely affect the outcome of the project.

## 6.0 Methodology

A Quality Assurance Project Plan (QAPP) previously issued in August, 2016 for SESD Project No. 16-0457 was used to guide site activities. The following SESD procedures and guidance were cited in the QAPP and used in this study:

SESDPROC-303-R5	Ambient Air Sampling
SESDPROC-307-R3	Soil Gas Sampling
SESDPROC-110-R4	Global Positioning System
SESDPROC-005-R3	Sample and Evidence Management
SESDPROC-010-R5	Logbooks
SESDPROC-205-R3	Field Equipment Cleaning and Decontamination

The specific procedures and processes used are detailed in the subsequent sections. The samples were sent to the EPA Analytical Services Branch (ASB) for analysis.

SESD collected 24-hour ambient air samples using 6 liter passivated sampling canisters equipped with flow controlling devices for indoor air as well as ambient air samples. Ambient air samples were collected in and around the neighborhood as well as between the neighborhood and the site to assess possible migration of contamination in the outdoor air.

SESD used the permanent sampling port in the floor of [REDACTED] previously installed by SESD and the EPA Environmental Response Team (ERT) during the May 2016 investigation to collect a sub-slab soil gas sample from the residence. SESD connected a short length of ¼ inch diameter Teflon® tubing to the port. The tubing was passed through a stainless steel shroud. The shroud was filled with helium while a small soil gas sample was collected into a Tedlar® bag for on-site sample analysis of helium content using a helium detector. The helium concentration in the Tedlar bag was less than ten percent of the helium concentration in the shroud, insuring integrity of the sampling port. SESD then connected the sampling tube through a flow device attached to a 6-liter passivated sampling canister. The canister was filled over a period of approximately 35-minutes.

Analysis of the samples was conducted by the SESD laboratory in accordance with *EPA Compendium Method TO-15, Determination Of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)*, January 1999. Laboratory QA/QC procedures were conducted in accordance with the guidelines incorporated in the analytical methods.

### Meteorological Data

Wind direction and speed were pulled from a meteorological station set-up by SESD personnel during which any indoor or ambient air samples were being collected. The unit used was an RM Young Meteorological Station with 6700 Series Translator.

## 7.0 Conclusions

This project was performed in order to produce another round of data for indoor air and sub-slab sampling of the home address [REDACTED] of the Eastern Heights neighborhood. Benzene detections were confirmed for the indoor air at this address at similar numbers as seen in the sampling event performed by SESD in May 2016. TCE detections were also encountered on this investigation from the ambient air as well as the indoor air. The detections of TCE started at 3.4 ug/m<sup>3</sup> on the western side of the neighborhood and decreased to 1.5 ug/m<sup>3</sup> on the eastern side after passing the homes. This suggests, with westerly winds from met data confirming, that the source of the TCE would be west of the neighborhood and subsequent ambient air locations.



## 8.0 References

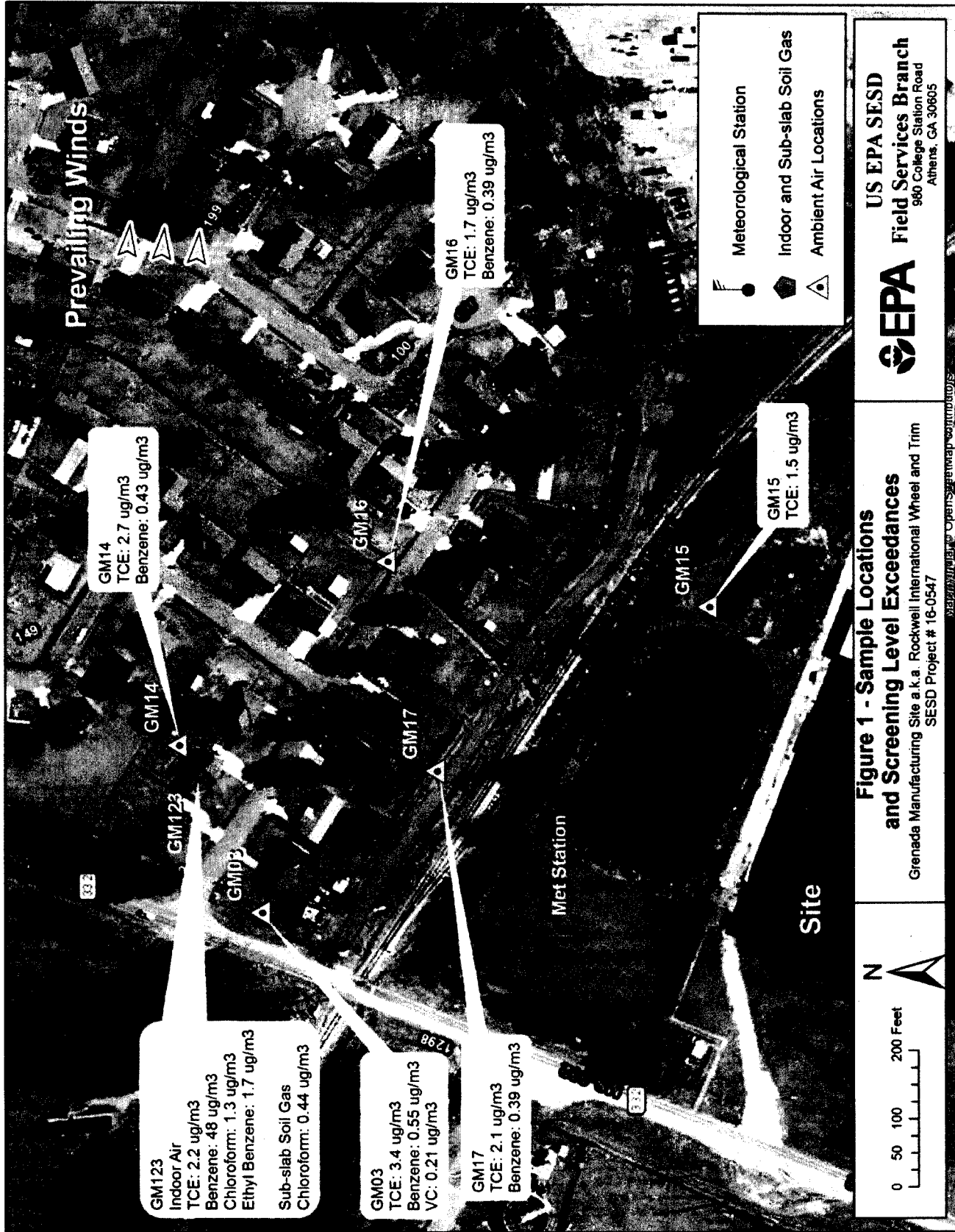
1. Arcadis, DRAFT Report. *Summary of Residential Air Sampling Analytical Results, Grenada Manufacturing Facility, Grenada, MS.* September 2015.
2. EPA Region 4 SEDS ASB. *SESD Analytical Support Branch Laboratory Operations and Quality Assurance Manual*, April 2016.
3. USEPA. *EPA Compendium Method TO-15, Determination Of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)*, January 1999.
4. EPA Region 4 SEDS. *Field Branches Quality System and Technical Procedures (Latest Versions)*. <http://www.epa.gov/quality/quality-system-and-technical-procedures-sesd-field-branches/>. Webpage last updated July 12, 2016.
5. USEPA. *Quality Assurance Project Plan for Grenada Manufacturing Ambient Air Sampling Event*. May, 2016, SEDS Project # 16-0323
6. USEPA. *Memorandum, Grenada Manufacturing Site Vapor Intrusion Study Data for [REDACTED] Grenada, Mississippi*. June 28, 2016, SEDS Project # 16-0323

# **Appendix A**

## **Figures**



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# **Appendix B**

## **Tables**

**Table 1 – Station and Sample Information**

TABLE 1 Sample Station Information			
Station ID	Sample ID	Location/Address	Matrix
GM03	GM03AA0916	West ambient air location	Ambient Air
GM14	GM14AA0916	North ambient air location	
GM15	GM15AA0916	Facility ambient air location	
GM16	GM16AA0916	East ambient air location	
GM17	GM17AA0916	South ambient air locations	
GM123	GM123SS0916		Sub-Slab Soil Gas
	GM123IA0916		Indoor Air
	GM123SSD0916		Sub-Slab Soil Gas Split
	GM123IAD0916		Indoor Air Duplicate
#R4DART#	GMTBA0916	Trip Blank Air	Trip Blank Air

**Table 2 – VOC Analyte List**

Constituent	Indoor Air / Ambient Air Screening Levels (µg/m³)†	Air Minimum Detection Limit (MDLs)* (µg/m³)
Benzene	0.36	0.067
Chloroform	0.12	0.10
Dichloroethane, 1,2-	0.11	0.11
Dichloroethene, 1,1-	210	0.078
Dichloroethene, cis-1,2-	NL	0.083
Dichloroethene, trans-1,2-	NL	0.087
Ethylbenzene	1.1	0.092
Methylene chloride	100	0.077
Tetrachloroethene	11	0.14
Toluene	5200	0.08
Trichloroethane, 1,1,2-	0.18	0.12
Trichloroethene	0.48	0.11
Trimethylbenzene, 1,2,4-	7.3	0.11
Vinyl chloride	0.17	0.053
m-Xylenes	100	0.19
o-Xylenes	100	0.093
p-Xylenes	100	0.19
Xylenes	100	0.19

† USEPA VISL Calculator Version 3.4, June 2015 RSLs used to calculate target residential screening levels for indoor air, ambient air, sub-slab vapor and exterior soil gas concentrations based on the lower of either a target cancer risk of 1E-06 or a target hazard index of 1. Screening levels assume 26 year exposure duration, 350 days per year, 24 hours per day.

\* Detection limits are based on the analytical methods and instrumentation used by SESD Analytical Support Branch (ASB) and reported in



**Table 3 –Air VOC Results**

Station ID	GM123	GM123	GM123	GM123	GM123	GM123	GM123	GM03	GM14	GM15	GM16	GM17
Sample ID	GM123/A0916	GM123/AD0916	GM123/SS0916	GM123/SS0916	GM123/SS0916	GM123/SS0916	GM123/SS0916	GM03AA0916	GM14AA0916	GM15AA0916	GM16AA0916	GM17AA0916
Matrix	Indoor Air	Indoor Air	Indoor Air	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air
Sample Date	9/21/2016 9:27	9/21/2016 9:27	9/21/2016 9:27	9/21/2016 8:34	9/21/2016 8:34	9/21/2016 8:34	9/21/2016 8:34	9/21/2016 9:04	9/21/2016 9:32	9/21/2016 8:54	9/21/2016 9:35	9/21/2016 9:02
Analyte	Units	VISL*										
(m- and/or p-)Xylene	ug/m3	100										
1,2,4-Trimethylbenzene	ug/m3	7.3	2.4 J,O	2.5 J,O	<3.8 U	<3.8 U	<3.8 U	0.91 J,O	0.72 J,O	<4.4 U	0.52 J,O	0.51 J,O
Benzene	ug/m3	0.36	0.41 J,O	0.54 J,O	<2.2 U	<2.1 U	<2.1 U	0.51 J,O	0.38 J,O	0.28 J,O	0.28 J,O	0.27 J,O
Chloroform	ug/m3	0.12			0.14 J,O	0.18 J,O				0.32 J,O		
Ethyl Benzene	ug/m3	1.1						<2.9 U	<2.5 U	<2.4 U	<2.6 U	<2.5 U
Tetrachloroethene (Tetrachloroethylene)	ug/m3	11	<3.4 U	<3.4 U	0.48 J,O	0.48 J,O	0.48 J,O	<4.1 U	<3.5 U	<3.4 U	<3.7 U	<3.5 U
Toluene	ug/m3	5200	11	11	<1.6 U	<1.6 U	<1.6 U	1.7 J,O	1.3 J,O	1.1 J,O	1.3 J,O	1.2 J,O
Trichloroethene (Trichloroethylene)	ug/m3	0.48			<2.3 U	<2.3 U	<2.3 U					
Vinyl chloride	ug/m3	0.17	0.14 J,O	<1.3 U	<1.1 U	<1.1 U	<1.1 U		<1.3 U	<1.3 U	<1.4 U	<1.3 U
cis-1,2-Dichloroethene	ug/m3	-	0.82 J,O	0.83 J,O	<1.7 U	<1.7 U	<1.7 U	1.1 J,O	0.95 J,O	0.46 J,O	0.54 J,O	0.78 J,O
o-Xylene	ug/m3	100	0.88 J,O	0.89 J,O	<1.9 U	<1.9 U	<1.9 U	0.42 J,O	0.29 J,O	<2.2 U	0.24 J,O	0.26 J,O
* Vapor Intrusion Screening Level			103 Lyon Drive Indoor and Sub-Slab Soil Gas Samples									

**Detection**

U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the export files.

**DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS**

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**Table 4 – Metrological station raw data**

R M YOUNG CO, Traverse City, MI

6700 SERIES TRANSLATOR

DATE	DATE	TIME	TIME	WS:AVG	WS:MAX	WD:AVG	WD:SDV
MONTH	DAY	HR	SQ HR	MPH	MPH	DEG	DEG
9.0	21.0	9.0	1.0	0.0	0.0	0.0	0.0
9.0	21.0	10.0	2.0	1.9	7.0	61.0	41.0
9.0	21.0	11.0	3.0	2.5	7.0	72.0	36.0
9.0	21.0	12.0	4.0	1.7	6.0	44.0	64.0
9.0	21.0	13.0	5.0	2.2	7.0	54.0	45.0
9.0	21.0	14.0	6.0	2.7	9.0	65.0	39.0
9.0	21.0	15.0	7.0	2.6	7.0	35.0	44.0
9.0	21.0	16.0	8.0	2.7	7.0	33.0	40.0
9.0	21.0	17.0	9.0	2.4	7.0	46.0	39.0
9.0	21.0	18.0	10.0	1.0	4.0	27.0	53.0
9.0	21.0	19.0	11.0	0.4	2.0	241.0	21.0
9.0	21.0	20.0	12.0	0.9	2.0	253.0	10.0
9.0	21.0	21.0	13.0	0.6	2.0	247.0	23.0
9.0	21.0	22.0	14.0	0.8	2.0	269.0	42.0
9.0	21.0	23.0	15.0	0.7	3.0	265.0	42.0
9.0	22.0	0.0	16.0	0.8	2.0	264.0	21.0
9.0	22.0	1.0	17.0	0.8	3.0	272.0	37.0
9.0	22.0	2.0	18.0	0.9	2.0	262.0	27.0
9.0	22.0	3.0	19.0	0.3	1.0	274.0	40.0
9.0	22.0	4.0	20.0	0.2	2.0	275.0	40.0
9.0	22.0	5.0	21.0	0.2	2.0	316.0	62.0
9.0	22.0	6.0	22.0	0.2	2.0	282.0	39.0
9.0	22.0	7.0	23.0	0.5	2.0	258.0	17.0
9.0	22.0	8.0	24.0	0.0	1.0	288.0	71.0
9.0	22.0	9.0	25.0	0.3	3.0	191.0	56.0

**Table 5 – Co-Located Duplicate Indoor Air and Sub-slab Split Comparisons**

Station ID			GM123	GM123		GM123	GM123	
Sample ID			GM123IA0916	GM123IAD0916		GM123SS0916	GM123SSS0916	
Matrix			Indoor Air	Indoor Air	RPD	Soil Gas	Soil Gas	RPD
Sample Date			9/21/2016 9:27	9/21/2016 9:27	(% diff)	9/21/2016 8:34	9/21/2016 8:34	(% diff)
Analyte	Units	VISL*						
(m- and/or p-)Xylene	ug/m3	100	2.4	2.5	4.08%	<3.8 U	<3.8 U	-
1,2,4-Trimethylbenzene	ug/m3	7.3	0.41	0.54	27.37%	<2.2 U	<2.1 U	-
Benzene	ug/m3	0.36			2.11%	0.14	0.18	25.00%
Chloroform	ug/m3	0.12			0.00%			0.00%
Ethyl Benzene	ug/m3	1.1			6.06%			-
Tetrachloroethene (Tetrachloroethylene)	ug/m3	11	<3.4 U	<3.4 U	-	0.48	0.48	0.00%
Toluene	ug/m3	5200	11	11	0.00%	<1.6 U	<1.6 U	
Trichloroethene (Trichloroethylene)	ug/m3	0.48			-4.44%	<2.3 U	<2.3 U	-
Vinyl chloride	ug/m3	0.17			-	<1.1 U	<1.1 U	-
cis-1,2-Dichloroethene	ug/m3	-	0.82	0.83	1.21%	<1.7 U	<1.7 U	-
o-Xylene	ug/m3	100	0.88	0.89	1.13%	<1.9 U	<1.9 U	-

\* Vapor Intrusion Screening Level

Detection

# **Appendix C**

## **Attachments**

(Each attachments are individually numbered)

FINAL Analytical Report – VOC Air (18 pages)

Field Sampling Logbook 1 of 1 (13 pages)

Air Chain of Custody – No. 09/22/16-0001 (1 pages)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

October 24, 2016

4SESD-ASB

**MEMORANDUM**

**SUBJECT:** FINAL Analytical Report  
Project: 16-0547, Grenada Manufacturing  
Resource Conservation and Recovery Act

**FROM:** Sallie Hale  
OCS Analyst

**THRU:** Jeffrey Hendel, Chief  
ASB Organic Chemistry Section

**TO:** Landon Pruitt

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at [www.epa.gov/region4/sesd/asbsop](http://www.epa.gov/region4/sesd/asbsop). Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Section 5.2 of the ASB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:

Method Used:

Accreditations:

---

**Volatile Organics (VOA)**

Volatile organic compounds

EPA TO-15 (Air)

ISO



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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---

**Sample Disposal Policy**

Because of the laboratory's limited space for long term sample storage, our policy is to dispose of samples on a periodic schedule. Please note that within 60 days of this memo, the original samples and all sample extracts and/or sample digestates will be disposed of in accordance with applicable regulations. The 60-day sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 60-day period, please contact our Sample Control Coordinator by e-mail at [R4SampleCustody@epa.gov](mailto:R4SampleCustody@epa.gov), and provide a reason for holding samples beyond 60 days





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

**SAMPLES INCLUDED IN THIS REPORT**

**Project: 16-0547, Grenada Manufacturing**

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
GMTBA0916	E163904-01	Trip Blank Air	9/20/16 08:00	9/23/16 7:50
GM03AA0916	E163904-02	Ambient Air	9/21/16 09:04	9/23/16 7:50
GM123IA0916	E163904-03	Indoor Air	9/21/16 09:27	9/23/16 7:50
GM123IAD0916	E163904-04	Indoor Air	9/21/16 09:27	9/23/16 7:50
GM123SS0916	E163904-05	Soil Gas	9/21/16 08:34	9/23/16 7:50
GM123SSS0916	E163904-06	Soil Gas	9/21/16 08:34	9/23/16 7:50
GM14AA0916	E163904-07	Ambient Air	9/21/16 09:32	9/23/16 7:50
GM15AA0916	E163904-08	Ambient Air	9/21/16 08:54	9/23/16 7:50
GM16AA0916	E163904-09	Ambient Air	9/21/16 09:35	9/23/16 7:50
GM17AA0916	E163904-10	Ambient Air	9/21/16 09:02	9/23/16 7:50



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Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

### DATA QUALIFIER DEFINITIONS

- U The analyte was not detected at or above the reporting limit.
- D-2 Due to Matrix Interference, the sample cannot be accurately quantified. The reported result is estimated.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- O-2 Result greater than MDL but less than MRL.

### ACRONYMS AND ABBREVIATIONS

- CAS Chemical Abstracts Service
- Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System ([www.epa.gov/srs](http://www.epa.gov/srs)), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.
- MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
- MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
- TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

### ACCREDITATIONS:

- ISO The test, if analyzed after June 26, 2012, is accredited under the EPA Region 4 ASB's ISO/IEC 17025 accreditation issued by ANSI-ASQ National Accreditation Board/ACCLASS. Refer to certificate and scope of accreditation AT-1691.
- NR The EPA Region 4 Laboratory has not requested accreditation for this test.



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D.A.R.T. Id: 16-0152

Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics**

**Project: 16-0547, Grenada Manufacturing**

Sample ID: GMTBA0916

Lab ID: E163904-01

Station ID:

Matrix: Trip Blank Air

Date Collected: 9/20/16 8:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.5	U	ug/m3	4.5	9/27/16 10:29	10/12/16 8:42	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	9/27/16 10:29	10/12/16 8:42	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	9/27/16 10:29	10/12/16 8:42	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.5	U	ug/m3	2.5	9/27/16 10:29	10/12/16 8:42	EPA TO-15
107-06-2	1,2-Dichloroethane	2.0	U	ug/m3	2.0	9/27/16 10:29	10/12/16 8:42	EPA TO-15
71-43-2	Benzene	1.6	U	ug/m3	1.6	9/27/16 10:29	10/12/16 8:42	EPA TO-15
67-66-3	Chloroform	2.4	U	ug/m3	2.4	9/27/16 10:29	10/12/16 8:42	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	9/27/16 10:29	10/12/16 8:42	EPA TO-15
100-41-4	Ethyl Benzene	2.2	U	ug/m3	2.2	9/27/16 10:29	10/12/16 8:42	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	9/27/16 10:29	10/12/16 8:42	EPA TO-15
95-47-6	o-Xylene	2.2	U	ug/m3	2.2	9/27/16 10:29	10/12/16 8:42	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.4	U	ug/m3	3.4	9/27/16 10:29	10/12/16 8:42	EPA TO-15
108-88-3	Toluene	1.9	U	ug/m3	1.9	9/27/16 10:29	10/12/16 8:42	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	9/27/16 10:29	10/12/16 8:42	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.7	U	ug/m3	2.7	9/27/16 10:29	10/12/16 8:42	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	9/27/16 10:29	10/12/16 8:42	EPA TO-15



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D.A.R.T. Id: 16-0152

Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics**

**Project: 16-0547, Grenada Manufacturing**

Sample ID: GM03AA0916

Lab ID: E163904-02

Station ID: GM03

Matrix: Ambient Air

Date Collected: 9/21/16 9:04

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.91	J, Q-2	ug/m3	5.3	9/27/16 10:29	10/12/16 9:33	EPA TO-15
79-00-5	1,1,2-Trichloroethane	3.3	U	ug/m3	3.3	9/27/16 10:29	10/12/16 9:33	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	2.2	U	ug/m3	2.2	9/27/16 10:29	10/12/16 9:33	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.51	J, Q-2	ug/m3	3.0	9/27/16 10:29	10/12/16 9:33	EPA TO-15
107-06-2	1,2-Dichloroethane	2.4	U	ug/m3	2.4	9/27/16 10:29	10/12/16 9:33	EPA TO-15
71-43-2	Benzene	0.55	J, Q-2	ug/m3	1.9	9/27/16 10:29	10/12/16 9:33	EPA TO-15
67-66-3	Chloroform	2.9	U	ug/m3	2.9	9/27/16 10:29	10/12/16 9:33	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.1	J, Q-2	ug/m3	2.4	9/27/16 10:29	10/12/16 9:33	EPA TO-15
100-41-4	Ethyl Benzene	0.30	J, Q-2	ug/m3	2.6	9/27/16 10:29	10/12/16 9:33	EPA TO-15
75-09-2	Methylene Chloride	2.0	U	ug/m3	2.0	9/27/16 10:29	10/12/16 9:33	EPA TO-15
95-47-6	o-Xylene	0.42	J, Q-2	ug/m3	2.7	9/27/16 10:29	10/12/16 9:33	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	4.1	U	ug/m3	4.1	9/27/16 10:29	10/12/16 9:33	EPA TO-15
108-88-3	Toluene	1.7	J, Q-2	ug/m3	2.3	9/27/16 10:29	10/12/16 9:33	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.5	U	ug/m3	2.5	9/27/16 10:29	10/12/16 9:33	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	3.4		ug/m3	3.2	9/27/16 10:29	10/12/16 9:33	EPA TO-15
75-01-4	Vinyl chloride	0.21	J, Q-2	ug/m3	1.5	9/27/16 10:29	10/12/16 9:33	EPA TO-15



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D.A.R.T. Id: 16-0152

Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 16-0547, Grenada Manufacturing

Sample ID: GM123IA0916

Lab ID: E163904-03

Station ID: GM123

Matrix: Indoor Air

Date Collected: 9/21/16 9:27

CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	2.4 J, Q-2	ug/m3	4.4	9/27/16 10:29	10/12/16 14:25	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8 U	ug/m3	2.8	9/27/16 10:29	10/12/16 14:25	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9 U	ug/m3	1.9	9/27/16 10:29	10/12/16 14:25	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.41 J, D-2, Q-2	ug/m3	2.5	9/27/16 10:29	10/12/16 14:25	EPA TO-15
107-06-2	1,2-Dichloroethane	2.0 U	ug/m3	2.0	9/27/16 10:29	10/12/16 14:25	EPA TO-15
71-43-2	Benzene	47	ug/m3	1.6	9/27/16 10:29	10/12/16 14:25	EPA TO-15
67-66-3	Chloroform	1.3 J, Q-2	ug/m3	2.4	9/27/16 10:29	10/12/16 14:25	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.82 J, Q-2	ug/m3	2.0	9/27/16 10:29	10/12/16 14:25	EPA TO-15
100-41-4	Ethyl Benzene	1.6 J, Q-2	ug/m3	2.2	9/27/16 10:29	10/12/16 14:25	EPA TO-15
75-09-2	Methylene Chloride	1.7 U	ug/m3	1.7	9/27/16 10:29	10/12/16 14:25	EPA TO-15
95-47-6	o-Xylene	0.88 J, Q-2	ug/m3	2.2	9/27/16 10:29	10/12/16 14:25	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.4 U	ug/m3	3.4	9/27/16 10:29	10/12/16 14:25	EPA TO-15
108-88-3	Toluene	11	ug/m3	1.9	9/27/16 10:29	10/12/16 14:25	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1 U	ug/m3	2.1	9/27/16 10:29	10/12/16 14:25	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.3 J, Q-2	ug/m3	2.7	9/27/16 10:29	10/12/16 14:25	EPA TO-15
75-01-4	Vinyl chloride	0.14 J, Q-2	ug/m3	1.3	9/27/16 10:29	10/12/16 14:25	EPA TO-15



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D.A.R.T. Id: 16-0152

Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 16-0547, Grenada Manufacturing

Sample ID: GM123IAD0916

Lab ID: E163904-04

Station ID: GM123

Matrix: Indoor Air

Date Collected: 9/21/16 9:27

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	2.5	J, Q-2	ug/m3	4.5	9/27/16 10:29	10/12/16 15:16	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	9/27/16 10:29	10/12/16 15:16	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	9/27/16 10:29	10/12/16 15:16	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.54	J, D-2, Q-2	ug/m3	2.5	9/27/16 10:29	10/12/16 15:16	EPA TO-15
107-06-2	1,2-Dichloroethane	2.0	U	ug/m3	2.0	9/27/16 10:29	10/12/16 15:16	EPA TO-15
71-43-2	Benzene	48		ug/m3	1.6	9/27/16 10:29	10/12/16 15:16	EPA TO-15
67-66-3	Chloroform	1.3	J, Q-2	ug/m3	2.4	9/27/16 10:29	10/12/16 15:16	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.83	J, Q-2	ug/m3	2.0	9/27/16 10:29	10/12/16 15:16	EPA TO-15
100-41-4	Ethyl Benzene	1.7	J, Q-2	ug/m3	2.2	9/27/16 10:29	10/12/16 15:16	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	9/27/16 10:29	10/12/16 15:16	EPA TO-15
95-47-6	o-Xylene	0.89	J, Q-2	ug/m3	2.2	9/27/16 10:29	10/12/16 15:16	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.4	U	ug/m3	3.4	9/27/16 10:29	10/12/16 15:16	EPA TO-15
108-88-3	Toluene	11		ug/m3	1.9	9/27/16 10:29	10/12/16 15:16	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	9/27/16 10:29	10/12/16 15:16	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.2	J, Q-2	ug/m3	2.7	9/27/16 10:29	10/12/16 15:16	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	9/27/16 10:29	10/12/16 15:16	EPA TO-15



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D.A.R.T. Id: 16-0152

Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 16-0547, Grenada Manufacturing

Sample ID: GM123SS0916

Lab ID: E163904-05

Station ID: GM123

Matrix: Soil Gas

Date Collected: 9/21/16 8:34

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	3.8	U	ug/m3	3.8	9/27/16 10:29	10/12/16 16:58	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.4	U	ug/m3	2.4	9/27/16 10:29	10/12/16 16:58	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.6	U	ug/m3	1.6	9/27/16 10:29	10/12/16 16:58	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.2	U	ug/m3	2.2	9/27/16 10:29	10/12/16 16:58	EPA TO-15
107-06-2	1,2-Dichloroethane	1.7	U	ug/m3	1.7	9/27/16 10:29	10/12/16 16:58	EPA TO-15
71-43-2	Benzene	0.14	J, Q-2	ug/m3	1.4	9/27/16 10:29	10/12/16 16:58	EPA TO-15
67-66-3	Chloroform	0.44	J, Q-2	ug/m3	2.1	9/27/16 10:29	10/12/16 16:58	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.7	U	ug/m3	1.7	9/27/16 10:29	10/12/16 16:58	EPA TO-15
100-41-4	Ethyl Benzene	1.9	U	ug/m3	1.9	9/27/16 10:29	10/12/16 16:58	EPA TO-15
75-09-2	Methylene Chloride	1.4	U	ug/m3	1.4	9/27/16 10:29	10/12/16 16:58	EPA TO-15
95-47-6	o-Xylene	1.9	U	ug/m3	1.9	9/27/16 10:29	10/12/16 16:58	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.48	J, Q-2	ug/m3	2.9	9/27/16 10:29	10/12/16 16:58	EPA TO-15
108-88-3	Toluene	1.6	U	ug/m3	1.6	9/27/16 10:29	10/12/16 16:58	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.8	U	ug/m3	1.8	9/27/16 10:29	10/12/16 16:58	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.3	U	ug/m3	2.3	9/27/16 10:29	10/12/16 16:58	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	9/27/16 10:29	10/12/16 16:58	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 16-0547, Grenada Manufacturing

Sample ID: GM123SSS0916

Lab ID: E163904-06

Station ID: GM123

Matrix: Soil Gas

Date Collected: 9/21/16 8:34

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	3.8	U	ug/m3	3.8	9/27/16 10:29	10/12/16 17:49	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.3	U	ug/m3	2.3	9/27/16 10:29	10/12/16 17:49	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.6	U	ug/m3	1.6	9/27/16 10:29	10/12/16 17:49	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.1	U	ug/m3	2.1	9/27/16 10:29	10/12/16 17:49	EPA TO-15
107-06-2	1,2-Dichloroethane	1.7	U	ug/m3	1.7	9/27/16 10:29	10/12/16 17:49	EPA TO-15
71-43-2	Benzene	0.18	J, Q-2	ug/m3	1.4	9/27/16 10:29	10/12/16 17:49	EPA TO-15
67-66-3	Chloroform	0.44	J, Q-2	ug/m3	2.0	9/27/16 10:29	10/12/16 17:49	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.7	U	ug/m3	1.7	9/27/16 10:29	10/12/16 17:49	EPA TO-15
100-41-4	Ethyl Benzene	1.9	U	ug/m3	1.9	9/27/16 10:29	10/12/16 17:49	EPA TO-15
75-09-2	Methylene Chloride	1.4	U	ug/m3	1.4	9/27/16 10:29	10/12/16 17:49	EPA TO-15
95-47-6	o-Xylene	1.9	U	ug/m3	1.9	9/27/16 10:29	10/12/16 17:49	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.48	J, Q-2	ug/m3	2.9	9/27/16 10:29	10/12/16 17:49	EPA TO-15
108-88-3	Toluene	1.6	U	ug/m3	1.6	9/27/16 10:29	10/12/16 17:49	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.8	U	ug/m3	1.8	9/27/16 10:29	10/12/16 17:49	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.3	U	ug/m3	2.3	9/27/16 10:29	10/12/16 17:49	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	9/27/16 10:29	10/12/16 17:49	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 16-0547, Grenada Manufacturing

Sample ID: GM14AA0916

Lab ID: E163904-07

Station ID: GM14

Matrix: Ambient Air

Date Collected: 9/21/16 9:32

CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.72 J, Q-2	ug/m3	4.6	9/27/16 10:29	10/12/16 18:39	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.9 U	ug/m3	2.9	9/27/16 10:29	10/12/16 18:39	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	2.0 U	ug/m3	2.0	9/27/16 10:29	10/12/16 18:39	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.38 J, Q-2	ug/m3	2.6	9/27/16 10:29	10/12/16 18:39	EPA TO-15
107-06-2	1,2-Dichloroethane	2.1 U	ug/m3	2.1	9/27/16 10:29	10/12/16 18:39	EPA TO-15
71-43-2	Benzene	0.43 J, Q-2	ug/m3	1.7	9/27/16 10:29	10/12/16 18:39	EPA TO-15
67-66-3	Chloroform	2.5 U	ug/m3	2.5	9/27/16 10:29	10/12/16 18:39	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.95 J, Q-2	ug/m3	2.1	9/27/16 10:29	10/12/16 18:39	EPA TO-15
100-41-4	Ethyl Benzene	0.25 J, Q-2	ug/m3	2.3	9/27/16 10:29	10/12/16 18:39	EPA TO-15
75-09-2	Methylene Chloride	1.7 U	ug/m3	1.7	9/27/16 10:29	10/12/16 18:39	EPA TO-15
95-47-6	o-Xylene	0.29 J, Q-2	ug/m3	2.3	9/27/16 10:29	10/12/16 18:39	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.5 U	ug/m3	3.5	9/27/16 10:29	10/12/16 18:39	EPA TO-15
108-88-3	Toluene	1.3 J, Q-2	ug/m3	2.0	9/27/16 10:29	10/12/16 18:39	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.2 U	ug/m3	2.2	9/27/16 10:29	10/12/16 18:39	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.7 J, Q-2	ug/m3	2.8	9/27/16 10:29	10/12/16 18:39	EPA TO-15
75-01-4	Vinyl chloride	1.3 U	ug/m3	1.3	9/27/16 10:29	10/12/16 18:39	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 16-0547, Grenada Manufacturing

Sample ID: GM15AA0916

Lab ID: E163904-08

Station ID: GM15

Matrix: Ambient Air

Date Collected: 9/21/16 8:54

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.4	U	ug/m3	4.4	9/27/16 10:29	10/12/16 19:30	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	9/27/16 10:29	10/12/16 19:30	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	9/27/16 10:29	10/12/16 19:30	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.28	J, Q-2	ug/m3	2.5	9/27/16 10:29	10/12/16 19:30	EPA TO-15
107-06-2	1,2-Dichloroethane	2.0	U	ug/m3	2.0	9/27/16 10:29	10/12/16 19:30	EPA TO-15
71-43-2	Benzene	0.32	J, Q-2	ug/m3	1.6	9/27/16 10:29	10/12/16 19:30	EPA TO-15
67-66-3	Chloroform	2.4	U	ug/m3	2.4	9/27/16 10:29	10/12/16 19:30	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.46	J, Q-2	ug/m3	2.0	9/27/16 10:29	10/12/16 19:30	EPA TO-15
100-41-4	Ethyl Benzene	2.2	U	ug/m3	2.2	9/27/16 10:29	10/12/16 19:30	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	9/27/16 10:29	10/12/16 19:30	EPA TO-15
95-47-6	o-Xylene	2.2	U	ug/m3	2.2	9/27/16 10:29	10/12/16 19:30	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.4	U	ug/m3	3.4	9/27/16 10:29	10/12/16 19:30	EPA TO-15
108-88-3	Toluene	1.1	J, Q-2	ug/m3	1.9	9/27/16 10:29	10/12/16 19:30	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	9/27/16 10:29	10/12/16 19:30	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	1.5	J, Q-2	ug/m3	2.7	9/27/16 10:29	10/12/16 19:30	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	9/27/16 10:29	10/12/16 19:30	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 16-0547, Grenada Manufacturing

Sample ID: GM16AA0916

Lab ID: E163904-09

Station ID: GM16

Matrix: Ambient Air

Date Collected: 9/21/16 9:35

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.52	J, Q-2	ug/m3	4.9	9/27/16 10:29	10/12/16 20:21	EPA TO-15
79-00-5	1,1,2-Trichloroethane	3.0	U	ug/m3	3.0	9/27/16 10:29	10/12/16 20:21	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	2.1	U	ug/m3	2.1	9/27/16 10:29	10/12/16 20:21	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.28	J, Q-2	ug/m3	2.8	9/27/16 10:29	10/12/16 20:21	EPA TO-15
107-06-2	1,2-Dichloroethane	2.2	U	ug/m3	2.2	9/27/16 10:29	10/12/16 20:21	EPA TO-15
71-43-2	Benzene	0.39	J, Q-2	ug/m3	1.8	9/27/16 10:29	10/12/16 20:21	EPA TO-15
67-66-3	Chloroform	2.6	U	ug/m3	2.6	9/27/16 10:29	10/12/16 20:21	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.54	J, Q-2	ug/m3	2.2	9/27/16 10:29	10/12/16 20:21	EPA TO-15
100-41-4	Ethyl Benzene	2.4	U	ug/m3	2.4	9/27/16 10:29	10/12/16 20:21	EPA TO-15
75-09-2	Methylene Chloride	1.8	U	ug/m3	1.8	9/27/16 10:29	10/12/16 20:21	EPA TO-15
95-47-6	o-Xylene	0.24	J, Q-2	ug/m3	2.4	9/27/16 10:29	10/12/16 20:21	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.7	U	ug/m3	3.7	9/27/16 10:29	10/12/16 20:21	EPA TO-15
108-88-3	Toluene	1.3	J, Q-2	ug/m3	2.1	9/27/16 10:29	10/12/16 20:21	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.3	U	ug/m3	2.3	9/27/16 10:29	10/12/16 20:21	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	1.7	J, Q-2	ug/m3	3.0	9/27/16 10:29	10/12/16 20:21	EPA TO-15
75-01-4	Vinyl chloride	1.4	U	ug/m3	1.4	9/27/16 10:29	10/12/16 20:21	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 16-0547, Grenada Manufacturing

Sample ID: GM17AA0916

Lab ID: E163904-10

Station ID: GM17

Matrix: Ambient Air

Date Collected: 9/21/16 9:02

CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.51 J, Q-2	ug/m3	4.6	9/27/16 10:29	10/12/16 21:11	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.9 U	ug/m3	2.9	9/27/16 10:29	10/12/16 21:11	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9 U	ug/m3	1.9	9/27/16 10:29	10/12/16 21:11	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.27 J, Q-2	ug/m3	2.6	9/27/16 10:29	10/12/16 21:11	EPA TO-15
107-06-2	1,2-Dichloroethane	2.1 U	ug/m3	2.1	9/27/16 10:29	10/12/16 21:11	EPA TO-15
71-43-2	Benzene	0.39 J, Q-2	ug/m3	1.7	9/27/16 10:29	10/12/16 21:11	EPA TO-15
67-66-3	Chloroform	2.5 U	ug/m3	2.5	9/27/16 10:29	10/12/16 21:11	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.78 J, Q-2	ug/m3	2.1	9/27/16 10:29	10/12/16 21:11	EPA TO-15
100-41-4	Ethyl Benzene	2.3 U	ug/m3	2.3	9/27/16 10:29	10/12/16 21:11	EPA TO-15
75-09-2	Methylene Chloride	1.7 U	ug/m3	1.7	9/27/16 10:29	10/12/16 21:11	EPA TO-15
95-47-6	o-Xylene	0.26 J, Q-2	ug/m3	2.3	9/27/16 10:29	10/12/16 21:11	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.5 U	ug/m3	3.5	9/27/16 10:29	10/12/16 21:11	EPA TO-15
108-88-3	Toluene	1.2 J, Q-2	ug/m3	2.0	9/27/16 10:29	10/12/16 21:11	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.2 U	ug/m3	2.2	9/27/16 10:29	10/12/16 21:11	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.1 J, Q-2	ug/m3	2.8	9/27/16 10:29	10/12/16 21:11	EPA TO-15
75-01-4	Vinyl chloride	1.3 U	ug/m3	1.3	9/27/16 10:29	10/12/16 21:11	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics (VOA) - Quality Control**

**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1609089 - V TO-15 Air Canister**

**Blank (1609089-BLK1)**

Prepared: 09/27/16 Analyzed: 10/12/16

**EPA TO-15**

(m- and/or p-)Xylene	U	1.9	ug/m3							U
1,1,2-Trichloroethane	U	1.2	"							U
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.78	"							U
1,2,4-Trimethylbenzene	U	1.0	"							U
1,2-Dichloroethane	U	0.83	"							U
Benzene	U	0.67	"							U
Chloroform	U	1.0	"							U
cis-1,2-Dichloroethene	U	0.83	"							U
Ethyl Benzene	U	0.92	"							U
Methylene Chloride	U	0.70	"							U
o-Xylene	U	0.93	"							U
Tetrachloroethene (Tetrachloroethylene)	U	1.4	"							U
Toluene	U	0.80	"							U
trans-1,2-Dichloroethene	U	0.87	"							U
Trichloroethene (Trichloroethylene)	U	1.1	"							U
Vinyl chloride	U	0.53	"							U

**LCS (1609089-BS1)**

Prepared: 09/27/16 Analyzed: 10/12/16

**EPA TO-15**

(m- and/or p-)Xylene	4.3673	ppbv	4.3180	101	72-140
1,1,2-Trichloroethane	1.8746	"	2.1590	86.8	71-142
1,1-Dichloroethene (1,1-Dichloroethylene)	2.1311	"	2.1590	98.7	70-140
1,2,4-Trimethylbenzene	2.3466	"	2.1590	109	66-136
1,2-Dichloroethane	1.7809	"	2.1590	82.5	71-137
Benzene	1.8746	"	2.1590	86.8	70-140
Chloroform	1.7701	"	2.1590	82.0	70-141
cis-1,2-Dichloroethene	2.2989	"	2.1590	106	70-136
Ethyl Benzene	2.1733	"	2.1590	101	70-137
Methylene Chloride	1.8845	"	2.1590	87.3	70-142
o-Xylene	2.2499	"	2.1590	104	72-136
Tetrachloroethene (Tetrachloroethylene)	2.0468	"	2.1590	94.8	68-148
Toluene	2.0747	"	2.1590	96.1	72-138
trans-1,2-Dichloroethene	1.8837	"	2.1394	88.0	73-136
Trichloroethene (Trichloroethylene)	1.9953	"	2.1590	92.4	69-137
Vinyl chloride	2.1263	"	2.3552	90.3	62-151



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 Region 4 Science and Ecosystem Support Division  
 980 College Station Road, Athens, Georgia 30605-2700  
 D.A.R.T. Id: 16-0152  
 Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics (VOA) - Quality Control**  
**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1609089 - V TO-15 Air Canister**

**LCS Dup (1609089-BSD1)**

Prepared: 09/27/16 Analyzed: 10/12/16

**EPA TO-15**

(m- and/or p-)Xylene	4.4504		ppbv	4.3180		103	72-140	1.88	25
1,1,2-Trichloroethane	1.8564		"	2.1590		86.0	71-142	0.975	25
1,1-Dichloroethene (1,1-Dichloroethylene)	2.1975		"	2.1590		102	70-140	3.07	25
1,2,4-Trimethylbenzene	2.3411		"	2.1590		108	66-136	0.236	25
1,2-Dichloroethane	1.8024		"	2.1590		83.5	71-137	1.20	25
Benzene	1.8842		"	2.1590		87.3	70-140	0.514	25
Chloroform	1.7862		"	2.1590		82.7	70-141	0.905	25
cis-1,2-Dichloroethene	2.3304		"	2.1590		108	70-136	1.36	25
Ethyl Benzene	2.1991		"	2.1590		102	70-137	1.18	25
Methylene Chloride	1.9900		"	2.1590		92.2	70-142	5.45	25
o-Xylene	2.2642		"	2.1590		105	72-136	0.631	25
Tetrachloroethene (Tetrachloroethylene)	1.9782		"	2.1590		91.6	68-148	3.41	25
Toluene	2.0707		"	2.1590		95.9	72-138	0.197	25
trans-1,2-Dichloroethene	1.9478		"	2.1394		91.0	73-136	3.35	25
Trichloroethene (Trichloroethylene)	1.9848		"	2.1590		91.9	69-137	0.528	25
Vinyl chloride	2.1008		"	2.3552		89.2	62-151	1.20	25

**Duplicate (1609089-DUP1)**

Source: E163904-04

Prepared: 09/27/16 Analyzed: 10/12/16

**EPA TO-15**

(m- and/or p-)Xylene	2.5483	4.5	ug/m3	2.4868		2.44	20	Q-2, J
1,1,2-Trichloroethane	U	2.8	"	U			20	U
1,1-Dichloroethene (1,1-Dichloroethylene)	U	1.9	"	U			20	U
1,2,4-Trimethylbenzene	0.54414	2.5	"	0.54402		0.0218	20	D-2, Q-2, J
1,2-Dichloroethane	U	2.0	"	U			20	U
Benzene	46.509	1.6	"	47.570		2.26	20	
Chloroform	1.2408	2.4	"	1.2720		2.48	20	Q-2, J
cis-1,2-Dichloroethene	0.82791	2.0	"	0.82925		0.161	20	Q-2, J
Ethyl Benzene	1.6446	2.2	"	1.6619		1.04	20	Q-2, J
Methylene Chloride	U	1.7	"	U			20	U
o-Xylene	0.90957	2.2	"	0.88582		2.65	20	Q-2, J
Tetrachloroethene (Tetrachloroethylene)	U	3.4	"	U			18.2	U
Toluene	11.210	1.9	"	11.136		0.666	20	
trans-1,2-Dichloroethene	U	2.1	"	U			20	U
Trichloroethene (Trichloroethylene)	2.2530	2.7	"	2.2338		0.854	20	Q-2, J
Vinyl chloride	0.14011	1.3	"	U			20	Q-2, J



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics (VOA) - Quality Control**

**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD Limit	Notes
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**Batch 1609089 - V TO-15 Air Canister**

**MRL Verification (1609089-PS1)**

Prepared: 09/27/16 Analyzed: 10/12/16

**EPA TO-15**

(m- and/or p-)Xylene	0.46639		ppbv	0.43152		108	52-160	MRL-5
1,1,2-Trichloroethane	0.25657		"	0.21576		119	51-162	MRL-5
1,1-Dichloroethene (1,1-Dichloroethylene)	0.32390		"	0.21576		150	50-160	MRL-5
1,2,4-Trimethylbenzene	0.22126		"	0.21576		103	46-156	MRL-5
1,2-Dichloroethane	0.27384		"	0.21576		127	51-157	MRL-5
Benzene	0.28467		"	0.21576		132	50-160	MRL-5
Chloroform	0.28640		"	0.21576		133	50-161	MRL-5
cis-1,2-Dichloroethene	0.33114		"	0.21576		153	50-156	MRL-5
Ethyl Benzene	0.24299		"	0.21576		113	50-157	MRL-5
Methylene Chloride	0.32766		"	0.21576		152	50-162	MRL-5
o-Xylene	0.23150		"	0.21576		107	52-156	MRL-5
Tetrachloroethene (Tetrachloroethylene)	0.28745		"	0.21576		133	48-168	MRL-5
Toluene	0.25086		"	0.21576		116	52-158	MRL-5
trans-1,2-Dichloroethene	0.28822		"	0.19947		144	53-156	MRL-5
Trichloroethene (Trichloroethylene)	0.30588		"	0.21576		142	49-157	MRL-5
Vinyl chloride	0.34568		"	0.23537		147	42-171	MRL-5



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 16-0547, Grenada Manufacturing - Reported by Sallie Hale

**Notes and Definitions for QC Samples**

- U        The analyte was not detected at or above the reporting limit.
- D-2     Due to Matrix Interference, the sample cannot be accurately quantified. The reported result is estimated.
- J        The identification of the analyte is acceptable; the reported value is an estimate.
- MRL-5   MRL verification for Air matrix
- Q-2     Result greater than MDL but less than MRL.



# United States Environmental Protection Agency Region 4

Science and Ecosystem Support Division  
980 College Station Road  
Athens, Georgia 30605-2720



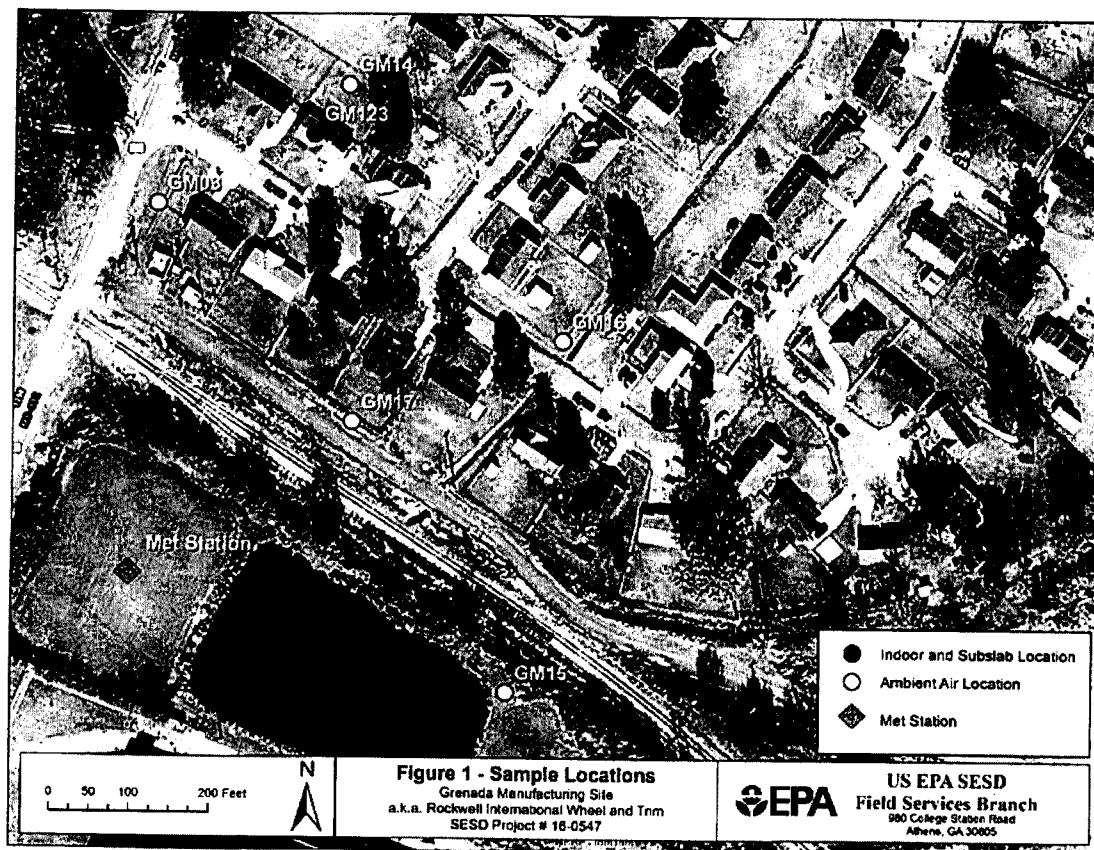
PROJECT NAME: Grenada Manufacturing Air Study  
PROJECT LOCATION: Grenada, Grenada County, MS  
PROJECT ID NUMBER: 16-0547  
PROJECT LEADER: Landon Pruitt

## Air Sampling Logbook

Book 1 of 1  
Inclusive Dates: 9/20/16 - 9/22/16

### List of personnel in logbook:

Name	Initials	Duties
<u>Landon Pruitt</u>	<u>LP</u>	<u>Sample</u> , Team Leader
<u>Den Fortson</u>	<u>DF</u>	<u>Sample</u>
<u> </u>	<u> </u>	<u> </u>



Excerpt from 16-0323 Logbook for sample station GM123, [REDACTED] residential sampling locations map:

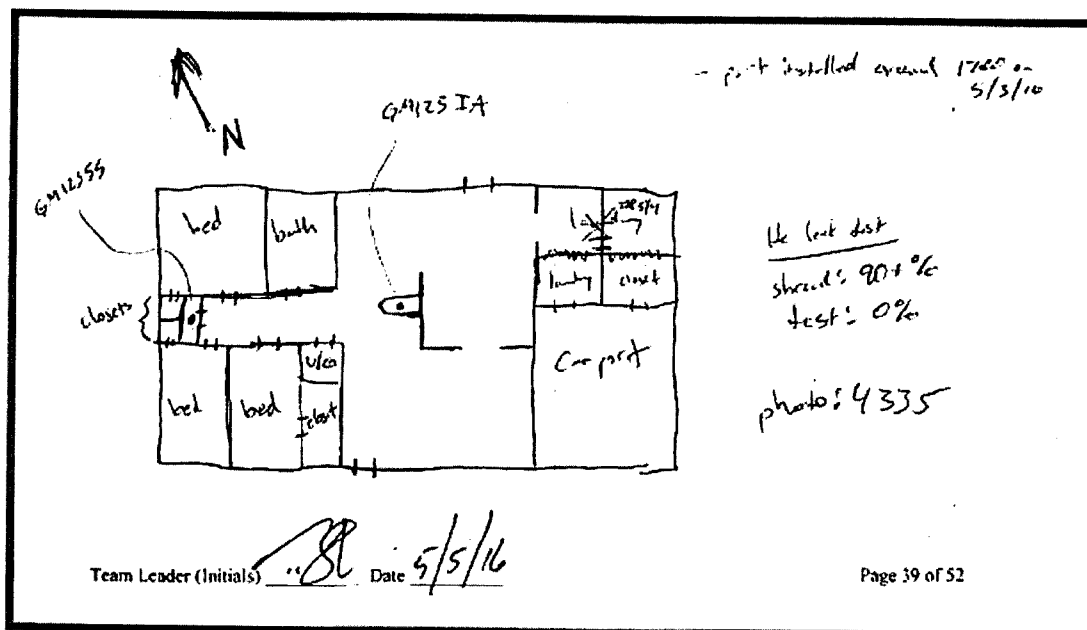


TABLE 1 Sample Station Information					
Station ID	Sample ID	Location/Address	Latitude*	Longitude*	Matrix
GM03	GM07AA0916	West ambient air location	33.80583513	-89.80123448	Ambient Air
GM14	GM17AA0916	North ambient air location			
GM15	GM12AA0916	Facility ambient air location			
GM16	GM13AA0916	East ambient air location			
GM17	GM17AA0916	South ambient air locations			
GM123	GM123SS0916	103 Lyon Drive	33.80607618	-89.80064464	Sub-Slab Soil Gas
	GM123IA0916				Indoor Air
	GM123SS0916		duplicate sample locations	Sub-Slab Soil Gas	
	GM123IA0916			Indoor Air	
#R4DART#	GMTBA0516 0916		-	-	Trip Blank Air

\* Latitudes and Longitudes for indoor air and sub-slab soil gas samples are recorded for the center of the house, the samples may not be taken directly at that spot. Field collections of GPS coordinates for new sample locations were electronically logged only and taken with the following equipment: Trimble GPS Unit, Serial # 5344436912 SESD Instrument # A7111 to an accuracy of        feet / inches.

#### General Sampling Methods:

**Ambient Air** samples will be collected using 6L Summa Canisters with a 24 hour flow controller following EPA Method TO-15 for Volatile Organics collection.

**Indoor Air** samples will be collected using 6L Summa Canisters with a 24 hour flow controller following EPA Method TO-15 for Volatile Organics collection. Prior to collection, EPA will attempt a "cleanout" of the chemicals in the house that might contribute to analyte detections.

**Sub-Slab Soil Gas** samples will be collected by connecting a 6L Summa Canister with a critical orifice soil gas controller via Teflon tubing to a permanent sampling port previously installed by EPA. The sampling techniques will follow SESD Soil Gas Sampling SOP SESDPROC-307-R3. Prior to sample collection, a helium leak check will be performed on the sub-slab port by placing a shroud over the hole, filling the shroud up to ~100% He, immediately filling a Tedlar bag from the sample port using a lung box, and testing the Tedlar sample for He leaks. Any detection above 10% will be considered a leak in the system.

#### VOC Air Trip Blank

Station ID: #R4DART#  
 Sample ID: GMTBA0916  
 Sample Time: 0800  
 Sample Date: 9/20/16  
 Collected by: L. Pratt  
 (CANISTER: 3939)

Notes: —

#### Meteorological Station Set-up

Model Used: RM Young  
 Start Date and Time: 9/20/16 08:51  
 End Date and Time: 9/22/16 09:00  
 Location: See map B.2  
 Data Saved Location: on unit

Notes: —

Station I.D. GM15 Sample I.D. GM15AA0916 Date. 9/20/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address Facility Ambient air location

Site Description see map on pg 2

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling Depth \_\_\_\_\_ Orifice or Flow Controller # FC 32

Canister # 3927

Name of Person Collecting Sample Landon Pruitt

Can Pressure Gauge

Start Date 9/21/16 Start Time 08:54 Initial -30 in Hg

Stop Date 9/22/16 Stop Time 09:29 Final -5 in Hg

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

See map on pg 2.

Station I.D. GM17 Sample I.D. GM17AAC916 Date. 9/20/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address South ambient air location

Site Description See map on pg. 2

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling Depth \_\_\_\_\_ Orifice or Flow Controller # FC33

Canister # 3590

Name of Person Collecting Sample Landon Pruitt

Can Pressure Gauge

Start Date 9/21/16 Start Time 09:02 Initial -30 in Hg

Stop Date 9/22/16 Stop Time 09:51 Final -5.5 in Hg

Notes: (other measurements)

**Other Notes/Sketch** (Include North and Scale)

Liquefied Petroleum Gas tanks on rail next. to station.  
Placard 1075.

Station I.D. GM03 Sample I.D. GM03AA0916 Date. 9/20/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address West ambient air location

Site Description see map on pg. 2

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling Depth \_\_\_\_\_ Orifice or Flow Controller # FC35

Canister # 3916

Name of Person Collecting Sample Landon Pruitt

Can Pressure Gauge

Start Date 9/21/16 Start Time 09:04 Initial -30 in Hg

Stop Date 9/22/16 Stop Time 08:56 Final -5 in Hg

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

Station I.D. GM16 Sample I.D. GM16AA0916 Date. 9/20/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address East ambient air location

Site Description See map on pg. 2

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling Depth \_\_\_\_\_ Orifice or Flow Controller # FC 36

Canister # 20647

Name of Person Collecting Sample Landon Pruitt

Can Pressure Gauge

Start Date 9/21/16 Start Time 09:35 Initial -30 in Hg

Stop Date 9/22/16 Stop Time 10:03 Final -7 in Hg

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)





Station I.D. GM14 Sample I.D. GM14AAC916 Date 9/20/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address North ambient air location

Site Description See map on pg. 2

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling Depth \_\_\_\_\_ Orifice or Flow Controller # FC37

Canister # 4471

Name of Person Collecting Sample Landon Pruitt

Can Pressure Gauge

Start Date 9/21/16 Start Time 09:32 Initial -30 in Hg

Stop Date 9/22/16 Stop Time 09:57 Final -5 in Hg

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)



Station I.D. GM123 Sample I.D. GM123SS0916 Date 9/21/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address \_\_\_\_\_

Site Description See map on pg. 2.

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling Depth \_\_\_\_\_ Orifice or Flow Controller # SGC21

Canister # 4081

Name of Person Collecting Sample Landon Pruitt

Can Pressure Gauge

Start Date 9/21/16 Start Time 08:34 Initial -29 inHg

Stop Date 9/21/16 Stop Time 09:09 Final 0 inHg

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

Helium Leak Test

Shroud 99.0 %

Test 0 %



Station I.D. GM123 Sample I.D. GM1235550916 Date. 9/21/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address \_\_\_\_\_

Site Description See map on pg 2

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling Depth \_\_\_\_\_ Orifice or Flow Controller # SGC 23

Canister # 20650

Name of Person Collecting Sample Landon Pruitt

Can Pressure Gauge

Start Date 9/21/16 Start Time 08:34 Initial -29 in Hg

Stop Date 9/21/16 Stop Time 09:09 Final 0 in Hg

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)



Station I.D. GM123 Sample I.D. GM123IA 0916 Date 9/21/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address \_\_\_\_\_

Site Description See map on pg 2Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth \_\_\_\_\_ Orifice or Flow Controller # FC34Canister # 2777Name of Person Collecting Sample Landon PruittCan Pressure GaugeStart Date 9/21/16 Start Time 09.27 Initial -30 in HgStop Date 9/22/16 Stop Time 09.07 Final -4 in Hg

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

Half the house was cleaned with PineSol the morning  
of initial setup (9/21/16)





Station I.D. GM123 Sample I.D. GM123IADC916 Date 9/21/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address \_\_\_\_\_

Site Description See map on pg. 2Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth \_\_\_\_\_ Orifice or Flow Controller # FC 31Canister # 5935Name of Person Collecting Sample Landon PruittCan Pressure GaugeStart Date 9/21/16 Start Time 09:27 Initial -30 inHgStop Date 9/22/16 Stop Time 09:07 Final -4 inHg

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

Team Leader (Initials) RL Date 12/10/16



Station I.D. \_\_\_\_\_ Sample I.D. \_\_\_\_\_ Date. \_\_\_\_\_  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address \_\_\_\_\_

Site Description \_\_\_\_\_

Type of sample:      Ambient Air Sample      Indoor Air Sample      Soil Gas Sample

Sampling Depth \_\_\_\_\_ Orifice or Flow Controller # \_\_\_\_\_

Canister # \_\_\_\_\_

Name of Person Collecting Sample \_\_\_\_\_

Can Pressure Gauge

Start Date \_\_\_\_\_ Start Time \_\_\_\_\_ Initial \_\_\_\_\_

Stop Date \_\_\_\_\_ Stop Time \_\_\_\_\_ Final \_\_\_\_\_

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

2nd cat  
1056664  
12/8/16

Team Leader (Initials) \_\_\_\_\_ Date \_\_\_\_\_



## USEPA Region 4 COC (REGION COPY)

Date Shipped: 9/22/2016

Carrier Name: GOV Carrier

Airbill No:

## CHAIN OF CUSTODY RECORD

Grenada Manufacturing/MS

Project Number: 16-0547

Cooler #:

No: 09/21/16-0001

Lab: Region 4 Lab

Lab Contact: Mike Beall

Lab Phone: 706-355-8856

Sample Identifier	CLP Sample No.	Media/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	Sample Type
-02 GM03AA0916		Ambient Air/ Pruitt, Landon	Comp.	VOA	A (None) (1) ✓	GM03	09/21/2016 09:04	Field Sample
-03 GM123IA0916		Indoor Air/ Pruitt, Landon	Comp.	VOA	A (None) (1) ✓	GM123	09/21/2016 09:27	Field Sample
-04 GM123AD0916		Indoor Air/ Pruitt, Landon	Comp.	VOA	A (None) (1) ✓	GM123	09/21/2016 09:27	Field Duplicate
-05 GM123SS0916		Soil Gas/ Pruitt, Landon	Comp.	VOA	A (None) (1) ✓	GM123	09/21/2016 08:34	Field Sample
-06 GM123SSS0916		Soil Gas/ Pruitt, Landon	Comp.	VOA	A (None) (1) ✓	GM123	09/21/2016 08:34	Field Duplicate
-07 GM14AA0916		Ambient Air/ Pruitt, Landon	Comp.	VOA	A (None) (1) ✓	GM14	09/21/2016 09:32	Field Sample
-08 GM15AA0916		Ambient Air/ Pruitt, Landon	Comp.	VOA	A (None) (1) ✓	GM15	09/21/2016 08:54	Field Sample
-09 GM16AA0916		Ambient Air/ Pruitt, Landon	Comp.	VOA	A (None) (1) ✓	GM16	09/21/2016 09:35	Field Sample
-10 GM17AA0916		Ambient Air/ Pruitt, Landon	Comp.	VOA	A (None) (1) ✓	GM17	09/21/2016 09:02	Field Sample
-01 GMTBA0916		Trip Blank Air/ Pruitt, Landon	Grab	VOA	A (None) (1) ✓	#R4DART#	09/20/2016 08:00	Trip Blank

Special Instructions: Can #'s: GMTBA0916=3939, GM15AA0916=3927, GM17AA0916=3599, GM03AA0916=3916, GM16AA0916=2064, GM14AA0916=4479, GM123SS0916=408, GM123SSS0916=20650, GM123IA0916=2777, GM123AD0916=5935

Shipment for Case Complete? *NY*  
 Samples Transferred From Chain of Custody #

Analysis Key: VOA=(VOA) Volatile Organics

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
<i>Samples</i>	<i>[Signature]</i> <i>SSD</i>	<i>9/22/16</i> <i>17:28</i>	<i>AmBeall EPA-SSD ASB</i>	<i>9-23-16</i> <i>0750</i>	<i>Good</i>

END OF REPORT





**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4**


Science and Ecosystem Support Division  
Enforcement and Investigations Branch  
980 College Station Road  
Athens, Georgia 30605-2720

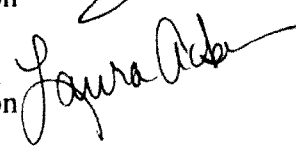
March 17, 2017

**4SESD-EIB**

**MEMORANDUM**

**SUBJECT:** Grenada Manufacturing Vapor Intrusion Investigation  
(a.k.a. Rockwell International Wheel and Trim)  
Grenada, Mississippi  
SESD Project # 17-0050

**FROM:** Tim Slagle  
Superfund and Air Section 

**THRU:** Laura Ackerman, Chief  
Superfund and Air Section 

**TO:** Brian Bastek, RCRA Project Manager  
Resource Conservation & Restoration Division  
Atlanta Federal Center  
61 Forsyth Street, SW  
Atlanta, Georgia 30303-8960

Attached is a copy of the Grenada Manufacturing Vapor Intrusion Investigation Sampling Event Report, that was conducted in Grenada, Mississippi, November 28 -December 2, 2016. If you have any questions or comments concerning the report, please call me at (706) 355-8741 or e-mail me at [Slagle.Tim@epa.gov](mailto:Slagle.Tim@epa.gov).





**Project ID: 17-0050**

**Grenada Manufacturing  
(a.k.a. Rockwell Wheel and Trim)  
Vapor Intrusion Sampling  
Investigation Report**

**Grenada, Grenada County, Mississippi**

**Project Date: November 28 – December 2, 2016**

**Report Release: March 2017**



Science & Ecosystem Support Division

**Project Leader: Tim Slagle**  
Superfund and Air Section  
Field Services Branch  
Science & Ecosystem Support Division  
USEPA – Region 4  
980 College Station Road  
Athens, Georgia 30605-2720

*The activities depicted in this report are accredited under the US EPA Region 4 Science and Ecosystem Support Division ISO/IEC 17025 accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation AT-1644.*



**Requestor:**

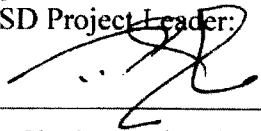
Brian Bastek, RCRD Project Manager  
RCRD Division  
USEPA – Region 4  
61 Forsyth Street SW  
Atlanta, Georgia 30303-8960

**Analytical Support:**

Analytical Services Branch  
Science & Ecosystem Support Division  
USEPA – Region 4  
980 College Station Road  
Athens, Georgia, 30605-2720

**Approvals:**

**SESD Project Leader:**

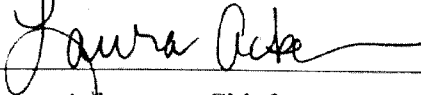


Tim Slagle, Regional Expert  
Superfund and Air Section  
Field Services Branch

3/17/2017

Date

**Approving Official:**



Laura Ackerman, Chief  
Superfund and Air Section  
Field Services Branch

3/17/17

Date



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FINAL Analytical Report – VOC Air (80 pages)	
Field Sampling Logbook (47 pages)	
Chain of Custody (7 pages)	



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## 1.0 Introduction

This document was prepared for the purpose of reporting the results of vapor intrusion air samples and meteorological data collected November 28 – December 2, 2016, by the USEPA Region 4, Science and Ecosystem Support Division (SESD) in the Eastern Heights neighborhood located directly north of the Grenada Manufacturing Site which is an active facility located at 635 Hwy 332, in Grenada, Mississippi. The investigation was requested by Brian Bastek, Project Manager, US EPA Region 4, Resource Conservation & Restoration Division.

SESD was tasked to collect indoor air and sub-slab soil gas samples at 18 residences. In addition, SESD collected ambient air samples at seven locations and established a temporary meteorological site for collection of wind speed and direction data. The samples were analyzed for Volatile Organic Compounds (VOCs) by the USEPA, SESD, Analytical Services Branch (ASB) laboratory.

The data from the sampling event will be used to inform the Project Manager (PM), of a potential pathway of indoor air contaminants seen in previous sampling events. The data generated by the study and represented in the subsequent sections will be evaluated by the PM. Air results will be compared to screening levels calculated by EPA Region 4 Superfund Scientific Services Section. Decisions for future actions on the site will be made by the PM.

The following personnel participated in the investigation:

<b><u>Personnel</u></b>	<b><u>Organization</u></b>	<b><u>Responsibilities</u></b>
Tim Slagle	USEPA/SESD	Project Leader, Sampler
Landon Pruitt	USEPA/SESD	Safety Officer, Sampler, Sample Processing
Don Fortson	Alion Science and Technology	SESD Sampler
Daniel Ferguson	Atlas Geo-Sampling	Sampler for the law firm representing the residents

## 2.0 Site Background

The manufacturing facility was constructed by Lyon in 1961 and sold to Rockwell International Corporation (Rockwell) in 1966. Rockwell's Automotive Division operated a wheel cover manufacturing facility at the site from 1966 to 1985 when the plant and property were sold to Textron Automotive Company (Textron), formerly Randall Textron. The Automotive Division was spun off from Rockwell in 1997 to form Meritor. In 1999, Textron sold the operations and property to Grenada Manufacturing, LLC (Grenada Manufacturing), who continued to operate the wheel cover plant until 2008 when portions of the plant and property were leased to ICE Industries, Inc. (ICE). Throughout most of the site history, the facility was used to manufacture automobile wheel covers. Following ICE's lease of the premises, the facility was converted to a



stamping plant, providing stamp-formed parts for various industries. Since 1989 EPA has been involved with the site and there have been a number of investigations and sampling events to discover and delineate a trichloroethene (TCE) contaminated groundwater plume and possible vapor intrusion and other air quality issues. There are several areas of concern that are potential sources for the contamination including several lagoons, an above ground storage tank (TCE), a below ground storage tank (toluene), an on-site landfill, and a waste water treatment plant.

### 3.0 Summary

SESD was tasked to collect indoor air and sub-slab soil gas samples in 18 homes. Access was denied to the inside of the home at [REDACTED] (Sample Station GM124) by the resident; however, the resident allowed the East Ambient Air Monitoring Sample Location (Sample Station GM11) to be placed in the backyard for the first day of sampling. Following the first day of sampling the resident requested that the ambient air sampler be removed from the backyard. Subsequent samples for Sample Station GM11 were collected from the next door backyard at [REDACTED]. Residential ambient air samples were collected at four locations for the 3-day time period that the indoor air samples were collected. In addition, three ambient air stations were located west of the neighborhood across Highway 332.

Previous indoor air samples collected in May and September 2016 at [REDACTED] (Sample Station GM123) showed a source of benzene inside the home that could not be identified. The 24-hour indoor air sample collected during this study showed an indoor air concentration of benzene of 36 ug/m<sup>3</sup>. The indoor air concentration of benzene has decreased with each successive sampling investigation.

The three additional ambient air sampling stations added to this investigation in the old landfill area had the highest concentrations of chlorinated analytes in the ambient air for this investigation. The sample collected at the North Landfill Ambient Air Location (GM18), started on November 29, 2016 had the highest concentration of trichloroethene at 2.8 J,O ug/m<sup>3</sup>. In addition, this location had the only detection of chloroform at 3.2 ug/m<sup>3</sup>, methylene chloride at 3.5 ug/m<sup>3</sup> and vinyl chloride at 0.82 J,O ug/m<sup>3</sup>. These concentrations were possibly biased low by high winds and heavy rain that could have diluted the ambient concentrations.

The BTEX chemicals, (benzene, toluene, ethylbenzene, ortho-xylene and meta/para-xylenes) and 1,2,4-trimethylbenzene, which is a gasoline additive, are all components of vehicle emissions and were detected in the ambient air samples. The ambient air concentrations of these VOCs were typical of an urban location and are likely to be found in the ambient air near roadways.

The sample station identifiers and locations are listed in Tables 1 and 2. All samples were analyzed for the VOCs listed in Table 3. All tables are provided in Appendix B at the end of this report.



## **4.0 Results and Discussion**

### **4.1 Field Observations**

Weather patterns were highly variable during the investigation. Sunny to partly cloudy skies, changed to strong thunderstorms with a nearby tornado and high winds, changing to clear skies. Observed winds were southerly until arrival of the storm front, then they shifted to mostly westerly, for the remainder of the sampling event. As a result of the tornadic winds and heavy rains; two ambient air samples at the landfill were voided due to water entrainment.

The resident at [REDACTED] (sample station GM109) was observed smoking indoors after being advised that the smoke could interfere with the results of the investigation.

T and M Associates was observed conducting maintenance on the monitoring wells at the slurry wall located on the west side of the landfill. These activities continued throughout the investigation. SESD questioned the operator to determine if the activities could impact the air sampling event; however, the operator was not permitted to disclose to EPA the activities that they were conducting.

Atlas Geo-Sampling collected samples at several of the same locations that SESD sampled. The ambient air and indoor air samples collected by Atlas and SESD were collected at roughly the same time. The inlet tubing of the Atlas samplers was not made of stainless steel and had a non-stainless steel moisture filter. These materials are not approved by EPA Method TO-15A and can contribute to or adsorb analytes. The soil gas samples collected by Atlas were collected after SESD's samples.

SESD observed Atlas Geo-Sampling collecting samples at the following 6 locations:

GM11 - West Ambient Air Monitoring Station  
GM115 - [REDACTED] Indoor Air Sample  
GM114 - [REDACTED] Indoor Air Sample  
GM121 - [REDACTED] Indoor Air Sample  
GM113 - [REDACTED] Indoor Air Sample  
GM122 - [REDACTED] Indoor Air Sample

Additional field observations that did not affect data quality are recorded in the Sampling Logbook in Appendix E.

### **4.2 VOC Analytical Results**

SESD collected 65 samples for this investigation. There were 15 ambient air samples including co-located duplicate samples from 4 stations located around the perimeter of the Eastern Heights residential study area. Nine ambient air samples were collected at three additional sites located at the landfill area. Two of the landfill ambient air samples were voided due to water entrainment. SESD also collected 19 sub-slab soil gas samples



and 19 indoor air samples from 17 homes including co-located duplicate and split samples. In addition, 3 trip blank samples were collected.

The samples were analyzed for a group of site specific VOCs listed in Table 3 in Appendix B. The ambient air stations and 17 residences sampled can be seen on the maps in Figures 1 and 2 in Appendix A. The summarized analytical results of each residence can be seen in Tables 4 thru 20 in Appendix B. These tables are organized in the order that the indoor air and soil gas samples were collected. The SESD Analytical Report can be found in Appendix E.

The minimum detection limits (MDLs), which are based on the analyte and the lab equipment, as well as method procedures required for the analysis of the samples are listed in Table 3 for each VOC analyte. The minimum reporting limits (MRLs) are included in the analytical results tables in Appendix C for the non-detected target compounds. The “non-detects” are followed by a “U” (data qualifier) that denotes the analyte was not detected above the listed numerical value. That listed value is the associated MRL and may vary between samples based on the dilutions required to quantify the concentration of the VOC analytes accurately. Some of the MRLs listed for the non-detects may be larger than the screening levels, but if the VOC was detected above the MDL but below the MRL, it will be reported, but flagged with a “J” as an estimated concentration. Many of the analytical results are followed by an “O” which denotes Other Data Qualifiers; refer to the list of Data Qualifiers at the front of the SESD Analytical Report.

## **5.0 Field Quality Control**

Three air trip blanks were prepared by the lab, transported with the sampling canisters, and handled the same as each air sample. There were no detections in any of the air trip blanks, the data can be seen in the SESD Analytical Report.

Analytical results associated with quality control samples are presented in Tables 21 to 23 in Appendix B. The data qualifier flags were removed for the sake of relative percent difference (RPD) calculations and are listed on page 5 of the SESD Analytical Report.

Co-located duplicate ambient air samples were collected at the South Ambient Air Location (station GM01) on each of the three days of the investigation. The same analytes were detected in the primary samples versus the duplicate samples each day, except on December 1, 2016; in GM01AA31116 (m- and/or p-) xylene was detected at a concentration of 0.43 ug/m<sup>3</sup> J, the primary sample, but was not detected in the duplicate sample GM01AA1116D. The MDL of 0.19 ug/m<sup>3</sup>, was used for the calculation of a 77.42% RPD due to the non-detection of the analyte. Absolute values of RPD for the 3 sets of primary and co-located samples were between 0.00% and 20.18% for the remaining analytes. RPDs in this range can be attributed to low concentration analytes, which are estimated with a “J” flag and a Q-2 flag, meaning the concentration is greater than the MDL but less than the MRL. The RPD values for the co-located ambient air samples can be seen in Table 21 in Appendix B.





A co-located duplicate indoor air sample and a split sub-slab soil gas sample were collected at [REDACTED] (station GM107) on November 29, 2016. The same analytes were detected in the primary sample versus the co-located duplicate indoor air sample. Absolute values of RPD of the indoor air primary and duplicate samples were between 1.60% and 5.88%. There were no analytes detected in the split sub-slab soil gas samples. The RPD values for the GM107 samples can be seen in Table 22 in Appendix B.

A co-located duplicate indoor air sample and a split sub-slab soil gas sample were also collected at [REDACTED] (station GM117) on November 30, 2016. The same analytes were detected in the primary sample versus the co-located duplicate indoor air sample. Absolute values of the RPDs for the indoor air primary and co-located samples were between 1.01% and 12.95%. The same analytes were detected in the primary sample versus the split sub-slab soil gas sample with the exception of 1,2-dichloroethane. In the primary soil gas sample, GM117SS1116 detected 1,2-dichloroethane at a concentration of 0.25 ug/m<sup>3</sup> J, but was not detected in the split sample GM117S1116S. The MDL of 0.11 ug/m<sup>3</sup> was used for the calculation the 77.78% RPD due to the non-detection of the analyte in the split sample. Absolute values of RPDs of the remaining sub-slab soil gas primary and split sample were between 0.00% and 2.20%. The RPD values for the GM117 samples can be seen in Table 23 in Appendix B.

RPDs were calculated using the following equation:

$$RPD = \frac{\text{Split Sample Result} - \text{Primary Sample Result}}{\text{Average of Split and Primary Sample Results}} * 100\%$$

The RPDs in the co-located duplicate air samples and sub-slab soil gas samples are relatively low and are not significant enough to adversely affect the outcome of the project.

## 6.0 Methodology

A Quality Assurance Project Plan (QAPP) approved in October, 2016 for this project was used to guide site activities. The following SESD procedures were cited in the QAPP and used in this study:

SESDPROC-303-R5	Ambient Air Sampling
SESDPROC-307-R3	Soil Gas Sampling
SESDPROC-110-R4	Global Positioning System
SESDPROC-005-R3	Sample and Evidence Management
SESDPROC-010-R5	Log Books
SESDPROC-205-R3	Field Equipment Cleaning and Decontamination

The specific procedures and processes used are detailed in the subsequent sections. The samples were sent to the SESD Analytical Services Branch (ASB) laboratory for analysis.



## **6.1 Sub-Slab Soil Gas Sampling**

SESD collected sub-slab soil gas samples from 17 residences (see Figure 1). The soil gas samples were collected from previously installed permanent sampling ports in the floor of each residence. At [REDACTED] (sample station GM119) the temporary port was removed after the May 2016 sampling event. A new temporary port was installed for this investigation. In addition, the permanent sample port installed at [REDACTED] (sample station GM116) was covered with new ceramic floor tile. After 2 attempts at redrilling and hitting rebar a new temporary sampling port was successfully located in the bedroom doorway on the third try.

SESD collected samples by connecting a short length of ¼ inch diameter Teflon® tubing to the port. To insure the seal around the sampling port was not leaking, a helium filled stainless steel shroud was placed over the sampling port. The tubing was passed thru the shroud. The shroud was filled with ultra-pure helium while a soil gas sample was collected into a Tedlar® bag for on-site sample analysis of helium content. The helium concentration in the Tedlar® bag had to be less than ten percent of the helium concentration in the shroud to insure integrity of the sampling port. None of the sampling ports failed the leak test. SESD then connected the sampling tube to a soil gas controller attached to a 6-liter passivated sampling canister. The canister was filled over a period of approximately 30-minutes depending on soil conditions. Then the sample tube was removed, the sampling port capped and the floor covering replaced. The canister was returned to SESD for analysis of the analytes listed in Table 3.

## **6.2 Indoor Air and Residential Ambient Air Sampling**

SESD collected 24-hour indoor air and ambient air samples using 6-liter passivated sampling canisters equipped with flow controllers. The indoor air samples were started immediately after the sub-slab soil gas sampling was completed. The indoor air samples were collected in the central portion of the home where the residents spend most of their time; usually the living, dining room or a hallway in the center of the house.

SESD collected residential ambient air samples at four locations around the perimeter of the study area. The ambient air samples were collected during the indoor air sampling interval, to assess the background concentrations of VOCs contained in the ambient air that may be infiltrating the indoor air. The ambient air monitoring locations are designated by yellow triangles on Figures 1 and 2 and are listed below.

- GM12 - North Ambient Air Location
- GM01 – South Ambient Air Location (co-located duplicate)
- GM13 – East ambient Air Location
- GM11 – West Ambient Air Location

The ambient air samples were collected on the three days when indoor air samples were also collected. Each 24-hour indoor air sample has two consecutive 24-hour ambient air samples associated with it. Collection of the ambient air and indoor air samples began as



the canisters were deployed at each location and thus had varying start times. When comparing the ambient and indoor air sample data, it was necessary to use data from the ambient air samples that bracketed the 24-hour collection period of the indoor air samples; therefore, the indoor air sample results for each of the residences shown in Tables 4 to 19, have 48-hour ambient air sample data that the 24-hour indoor air sample was collected within. Except for Lyon Drive (GM123), where the indoor and ambient air samples were collected in approximately the same 24-hour time period, this was due to access to the residence, this data set is in Table 20.

### **6.3 Landfill Ambient Air Sampling**

For this investigation, Glen Adams, US EPA Region 4, Superfund Technical Services Section, requested SESD to add 3 ambient air monitoring sites, that were not listed in the QAPP. The additional monitoring sites are designated as Landfill Ambient Air monitoring sites, located on the west side of Highway 332, directly east of the Grenada Manufacturing facility and southwest of the Eastern Heights neighborhood.

SESD collected 24-hour ambient samples using 6-liter passivated sampling canisters equipped with flow controllers. SESD collected the landfill ambient air samples at three locations near the creek that borders the north and west side of the capped landfill. The landfill ambient air monitoring locations are designated by yellow triangles on Figure 2 and are listed below.

- GM19 – South Landfill Ambient Air Location
- GM18 – North Landfill Ambient Air Location
- GM02 – Old Water Treatment Plant Ambient Air Location

All sampling and QA/QC procedures for field activities were conducted in accordance with the EPA Region 4 SESD Field Branches Quality Systems and Technical Procedures. Sample custody was maintained by SESD for transport to the ASB laboratory for analysis.

Analysis of the samples was conducted by the ASB laboratory in accordance with *EPA Compendium Method TO-15, Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography /Mass Spectrometry (GC/MS)*, January 1999. Laboratory QA/QC procedures were conducted in accordance with the guidelines incorporated in the analytical methods.

### **6.4 Meteorological Data**

A temporary meteorological station was established by SESD at the capped equalization pond which is located south of the Eastern Heights neighborhood on the Grenada Manufacturing property. This is a secure site that is fenced and guarded and has been used as a meteorological station in previous investigations. The site is a large open level field that is free of obstructions that might influence data collection. The wind speed and direction data collected during the investigation show that the wind was generally from



the west. The hourly wind data is divided into the three time periods that the ambient air samples were collected in. The hourly meteorological data can be seen in Tables 26 to 28 in Appendix C.

Table 26 displays the wind speed and direction data for the period 07:00 on November 29, 2016 to 08:00 on November 30, 2016. The data shows that the hourly wind speed average varied from 0.6 miles per hour (mph) to 5.8 mph with gusts up to 33 mph. The wind direction was predominantly from the south until 18:00 on November 29 then became variable as thunderstorms moved into the area.

Table 27 displays the wind speed and direction data for the period 07:00 on November 30, 2016 to 08:00 on December 1, 2016. The data shows that the hourly wind speed average varied from 0.6 miles per hour (mph) to 7.3 mph with gusts up to 20 mph. The wind direction was predominantly from the west.

Table 28 displays the wind speed and direction data for the period 07:00 on December 1, 2016 to 18:00 on December 1, 2016. When the external batteries failed due to moisture from the heavy thunderstorms. The data shows that the hourly wind speed average varied from 0.7 miles per hour (mph) to 4.5 mph with gusts up to 13 mph. The wind direction was predominantly from the west to southwest.

## **7.0 Conclusions**

This project was conducted to inform decisions about the potential risk posed to the residences of a neighborhood just north of the former Grenada Manufacturing facility from possible indoor air contamination.

The 16 VOC target analytes requested for this investigation are listed Table 3 in Appendix B.

Six of the analytes are not chlorinated and are commonly found in gasoline and diesel fuel. 1,2,4-trimethylbenzene which is a gasoline additive and the BTEX chemicals (benzene, toluene, ethylbenzene, ortho-xylene and meta/para-xylenes) are all components of vehicle emissions and are commonly detected at ambient air stations near roadways.

Ten of the analytes are chlorinated; 1,1,2-trichloroethane, 1,1-dichloroethene, 1,2-dichloroethane, chloroform, methylene chloride, tetrachloroethene (PCE), trichloroethene (TCE), vinyl chloride, cis-1,2-dichloroethene, and trans-1,2-dichloroethene.

The data for each of the 17 residences is presented in Tables 4 to 20 in Appendix B. These tables each have three elements;

- The VOC concentrations (detections) at the 4 residential ambient air stations for the two days bracketing the indoor air sample collection.
- The VOC detections in the 24-hour indoor air sample for the residence.
- The VOC detections in the sub-slab soil gas sample for the residence.





Each of the detections are highlighted in yellow, to aid in comparison of the concentrations between the three different matrices; ambient air, indoor air and sub-slab soil gas.

Photographs of each sampling station are presented in images 1 to 42 in Appendix D. Images 1 to 8 are the seven ambient air sampling stations. Images 10 to 42 are the residential sub-slab soil gas and indoor air sampling stations. These photographs are arranged in order of sub-slab soil gas sample collection. In addition, each page represents a separate residence with the sub-slab soil gas sampling station at the top of the page and the indoor air sampling station at the bottom.

The Photograph Log containing the photographs taken during this investigation (presented in contact sheet format) and the individual data for each photograph are in Appendix D.

## **7.1 Sub-Slab Soil Gas Sampling**

VOCs were detected in each of the sub-slab soil gas samples collected for this investigation, except for [REDACTED] (GM111), [REDACTED] (GM114) and [REDACTED] (GM107). The maximum and minimum concentrations, the total number of occurrences (samples) of each analyte, and the station location where the maximum concentration was detected are summarized in Chart 1 at the end of this section.

Eight of the 16 VOC target analytes were detected in the 19 sub-slab soil gas samples (17 locations plus two split samples).

Four of the ten chlorinated analytes were detected in the sub-slab soil gas samples; 1,2-dichloroethene was detected in one sample, chloroform was detected in ten samples, tetrachloroethene (PCE) was detected in nine samples and trichloroethene (TCE) was detected in two samples.

Four of the six non-chlorinated analytes were detected in the sub-slab soil gas samples; 1,2,4-trimethylbenzene was detected in one sample, benzene was detected in seven samples, toluene was detected in six samples and o-xylene was detected in two samples.

Eight of the VOC target analytes were not detected in any of the sub-slab soil gas samples these were; (m- and/or p-) xylene, 1,1,2-trichloroethane, 1,1-dichloroethene, ethyl benzene, methylene chloride, vinyl chloride, cis-1,2-dichloroethene and trans-1,2-dichloroethene.



Chart 1					
Sub-Slab Soil Gas Maximum and Minimum VOC Concentration Summary					
Analyte	Units	Maximum Concentration	Minimum Concentration	Total Occurrences	Maximum Concentration Station ID
(m- and/or p-)Xylene	ug/m3	0	0	0	N/D
1,1,2-Trichloroethane	ug/m3	0	0	0	N/D
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3	0	0	0	N/D
1,2,4-Trimethylbenzene	ug/m3	0.48	0.48	1	GM116
1,2-Dichloroethane	ug/m3	0.25	0.25	1	GM117
Benzene	ug/m3	1.7	0.14	7	GM116
Chloroform	ug/m3	15	0.28	10	GM113
Ethyl Benzene	ug/m3	0	0	0	N/D
Methylene Chloride	ug/m3	0	0	0	N/D
Tetrachloroethene (Tetrachloroethylene)	ug/m3	0.81	0.3	9	GM116
Toluene	ug/m3	0.78	0.22	6	GM116
Trichloroethene (Trichloroethylene)	ug/m3	0.29	0.27	2	GM113
Vinyl chloride	ug/m3	0	0	0	N/D
cis-1,2-Dichloroethene	ug/m3	0	0	0	N/D
o-Xylene	ug/m3	0.33	0.24	2	GM119
trans-1,2-Dichloroethene	ug/m3	0	0	0	N/D

Detects are Highlighted

N/D = Not Detected

## 7.2 Residential Ambient Air Sampling

VOCs were detected in each of the residential ambient air samples collected for this investigation. The maximum and minimum concentrations, the total number of occurrences (samples) of each analyte, and the station location where the maximum concentration was detected are summarized in Chart 2 at the end of this section.

Seven of the 16 VOC target analytes were detected in the 15 residential ambient air samples (5 locations including co-located duplicate sample for 3 days). The highest concentrations of all seven of the analytes detected at the four residential ambient air stations were found at the West Ambient Air Monitoring station (GM11) which is next to Highway 332.

All six of the non-chlorinated analytes were found in the ambient air samples, (m- and/or p-) xylene was detected in seven samples, 1,2,4-trimethylbenzene was found in ten samples, benzene and toluene was detected in all 15 samples, ethylbenzene was detected in one sample, o-xylene was detected in eight samples. Trichloroethene was the only chlorinated analyte detected and was only detected in one residential ambient air sample.



Chart 2					
Residential Ambient Air Maximum and Minimum VOC Concentration Summary					
Analyte	Units	Maximum Concentration	Minimum Concentration	Total Occurrences	Maximum Concentration Station ID
(m- and/or p-)Xylene	ug/m3	0.67	0.43	7	GM11
1,1,2-Trichloroethane	ug/m3	0	0	0	N/D
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3	0	0	0	N/D
1,2,4-Trimethylbenzene	ug/m3	0.71	0.24	10	GM11
1,2-Dichloroethane	ug/m3	0	0	0	N/D
Benzene	ug/m3	0.55	0.3	15	GM11
Chloroform	ug/m3	0	0	0	N/D
Ethyl Benzene	ug/m3	0.24	0.24	1	GM11
Methylene Chloride	ug/m3	0	0	0	N/D
Tetrachloroethene (Tetrachloroethylene)	ug/m3	0	0	0	N/D
Toluene	ug/m3	1	0.34	15	GM11
Trichloroethene (Trichloroethylene)	ug/m3	0.29	0.29	1	GM11
Vinyl chloride	ug/m3	0	0	0	N/D
cis-1,2-Dichloroethene	ug/m3	0	0	0	N/D
o-Xylene	ug/m3	0.37	0.24	8	GM11
trans-1,2-Dichloroethene	ug/m3	0	0	0	N/D

Detects are Highlighted

N/D = Not Detected

### 7.3 Indoor Air Sampling

VOCs were detected in each of the indoor air samples collected for this investigation. The maximum and minimum concentrations, the total number of occurrences (samples) of each analyte, and the station location where the maximum concentration was detected are summarized in Chart 3 at the end of this section.

Twelve of the 16 target analytes were detected in the 19 indoor air samples (17 locations plus 2 co-located duplicate samples).

The highest indoor air concentration of benzene was at [REDACTED] (GM123). Elevated concentrations of benzene have been detected at this residence during two previous rounds of sampling. The indoor air concentration of benzene for this investigation was 36 ug/m<sup>3</sup> and has decreased since its discovery in May 2016. The indoor air benzene concentrations for the three investigations are listed below.

57 ug/m <sup>3</sup>	SESD Project #16-0323, May 2016
48 ug/m <sup>3</sup> and 48 ug/m <sup>3</sup>	SESD Project #16-0547, September 2016
36 ug/m <sup>3</sup>	SESD Project #17-0050, November 2016



All six of the non-chlorinated analytes were found in the ambient air samples. Toluene and benzene were detected in all 19 indoor air samples collected. Ethylbenzene and (m- and/or p-) xylene were detected in 15 samples, 1,2,4-trimethylbenzene was found in 14 samples, and o-xylene was detected in 17 samples.

Six of the ten chlorinated analytes were detected in the indoor air samples; chloroform was detected in 17 samples and 1,2-dichloroethane was detected in 14 samples. Methylene chloride was detected in one sample, tetrachloroethene (PCE) was detected in 2 samples, trichloroethene (TCE) was detected in one sample and 1,1-dichloroethene was detected in one sample.

Four of the VOC target analytes were not detected in any of the indoor air samples, these were: 1,1,2-trichloroethane, vinyl chloride, cis-1,2-dichloroethene and trans-1,2-dichloroethene.

Chart 3					
Indoor Air Maximum and Minimum VOC Concentration Summary					
Analyte	Units	Maximum Concentration	Minimum Concentration	Total Occurrences	Maximum Concentration Station ID
(m- and/or p-)Xylene	ug/m3	6.5	0.59	15	GM109
1,1,2-Trichloroethane	ug/m3	0	0	0	N/D
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3	0.22	0.22	1	GM121
1,2,4-Trimethylbenzene	ug/m3	1.1	0.26	14	GM123
1,2-Dichloroethane	ug/m3	2.5	0.33	14	GM119
Benzene	ug/m3	36	0.39	19	GM123
Chloroform	ug/m3	4.3	0.26	17	GM109
Ethyl Benzene	ug/m3	2.3	0.26	15	GM109
Methylene Chloride	ug/m3	2.1	2.1	1	GM112
Tetrachloroethene (Tetrachloroethylene)	ug/m3	3.3	0.36	2	GM113
Toluene	ug/m3	24	1.4	19	GM109
Trichloroethene (Trichloroethylene)	ug/m3	0.29	0.29	1	N/D
Vinyl chloride	ug/m3	0	0	0	N/D
cis-1,2-Dichloroethene	ug/m3	0	0	0	N/D
o-Xylene	ug/m3	1.9	0.22	17	GM110
trans-1,2-Dichloroethene	ug/m3	0	0	0	N/D

Detects are Highlighted

N/D = Not Detected





## **7.4 Landfill Ambient Air Sampling**

The three additional ambient air sampling stations added to this investigation in the old landfill area had the highest concentrations of chlorinated analytes in the ambient air for this investigation. The sample collected at the North Landfill Ambient Air Ambient Location (GM18), started on November 29, 2016, had the highest concentration of trichloroethene. In addition, this location had the only detection of ethyl benzene, chloroform, methylene chloride and vinyl chloride. These concentrations were possibly biased low by the high winds that could have diluted the ambient concentrations. In addition, the heavy rain may have also reduced the concentrations of the VOC target analytes in the ambient air. The heavy rain and high winds caused rainwater to enter the samplers at the South Landfill Ambient Air Location (GM19) and the North Landfill Ambient Air Location (GM18) on the second day of sampling in sufficient quantity to stop the air flow into the canister, thus voiding the sample.

The landfill ambient air sampling results are presented with the residential ambient air sampling results in Tables 24 to 26. The Ambient Air Monitoring Locations are arranged from west to east. This was done to demonstrate any change in concentration in the ambient air based on wind direction. This concentration gradient can be seen best on the third day of sampling, when the winds were mainly from the west to southwest at 0.1 miles per hour (mph) to 4.5 mph with gusts up to 13 mph.

VOCs were detected in each of the landfill ambient air samples collected for this investigation. The maximum and minimum concentrations, the total number of occurrences (samples) of each analyte, and the station location where the maximum concentration was detected are summarized in Chart 4 at the end of this section.

Eleven of the 16 VOC target analytes were detected in the seven ambient air samples (3 locations for three days minus two void samples).

All six of the non-chlorinated analytes were found in the landfill ambient air samples. Toluene and benzene were detected in all seven landfill air samples collected. 1,2,4-trimethylbenzene and (m- and/or p-) xylene were detected in five samples. Ethyl benzene was found in one sample and o-xylene was detected in four samples.

Five of the seven chlorinated analytes were detected in the ambient air samples; chloroform and methylene chloride were detected in one sample. Trichloroethene (TCE) was detected in four samples. Vinyl chloride was detected in one sample, and cis-1,2-dichloroethene was detected in three samples.

Five VOC target analytes were not detected in any of the ambient air samples; these were: 1,1,2-trichloroethane, 1,1-dichloroethene, 1,2-dichloroethane, tetrachloroethene (PCE), and trans-1,2-dichloroethene.



Chart 4					
Landfill Ambient Air Maximum and Minimum VOC Concentration Summary					
Analyte	Units	Maximum Concentration	Minimum Concentration	Total Occurrences	Maximum Concentration Station ID
(m- and/or p-)Xylene	ug/m3	0.96	0.55	5	GM18
1,1,2-Trichloroethane	ug/m3	0	0	0	N/D
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3	0	0	0	N/D
1,2,4-Trimethylbenzene	ug/m3	1.8	0.35	5	GM19
1,2-Dichloroethane	ug/m3	0	0	0	N/D
Benzene	ug/m3	0.68	0.32	7	GM18
Chloroform	ug/m3	3.2	3.2	1	GM18
Ethyl Benzene	ug/m3	0.27	0.27	1	GM18
Methylene Chloride	ug/m3	3.5	3.5	1	GM18
Tetrachloroethene (Tetrachloroethylene)	ug/m3	0	0	0	N/D
Toluene	ug/m3	1.1	0.42	7	GM18
Trichloroethene (Trichloroethylene)	ug/m3	2.8	0.3	4	GM18
Vinyl chloride	ug/m3	0.82	0.82	1	GM18
cis-1,2-Dichloroethene	ug/m3	0.42	0.21	3	GM18
o-Xylene	ug/m3	0.55	0.27	4	GM18
trans-1,2-Dichloroethene	ug/m3	0	0	0	N/D

Detects are Highlighted

N/D = Not Detected



## 8.0 References

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4. EPA Region 4 SEDS. *Field Branches Quality System and Technical Procedures (Latest Versions)*. <http://www.epa.gov/region4/sesd/fbqstp/>. Webpage last updated November 7, 2016.
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6. USEPA. *Regional Screening Levels Summary Table – November 2015*. <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-november-2015>. Webpage last updated January 9, 2017.



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# **Appendix A**

## **Figures**



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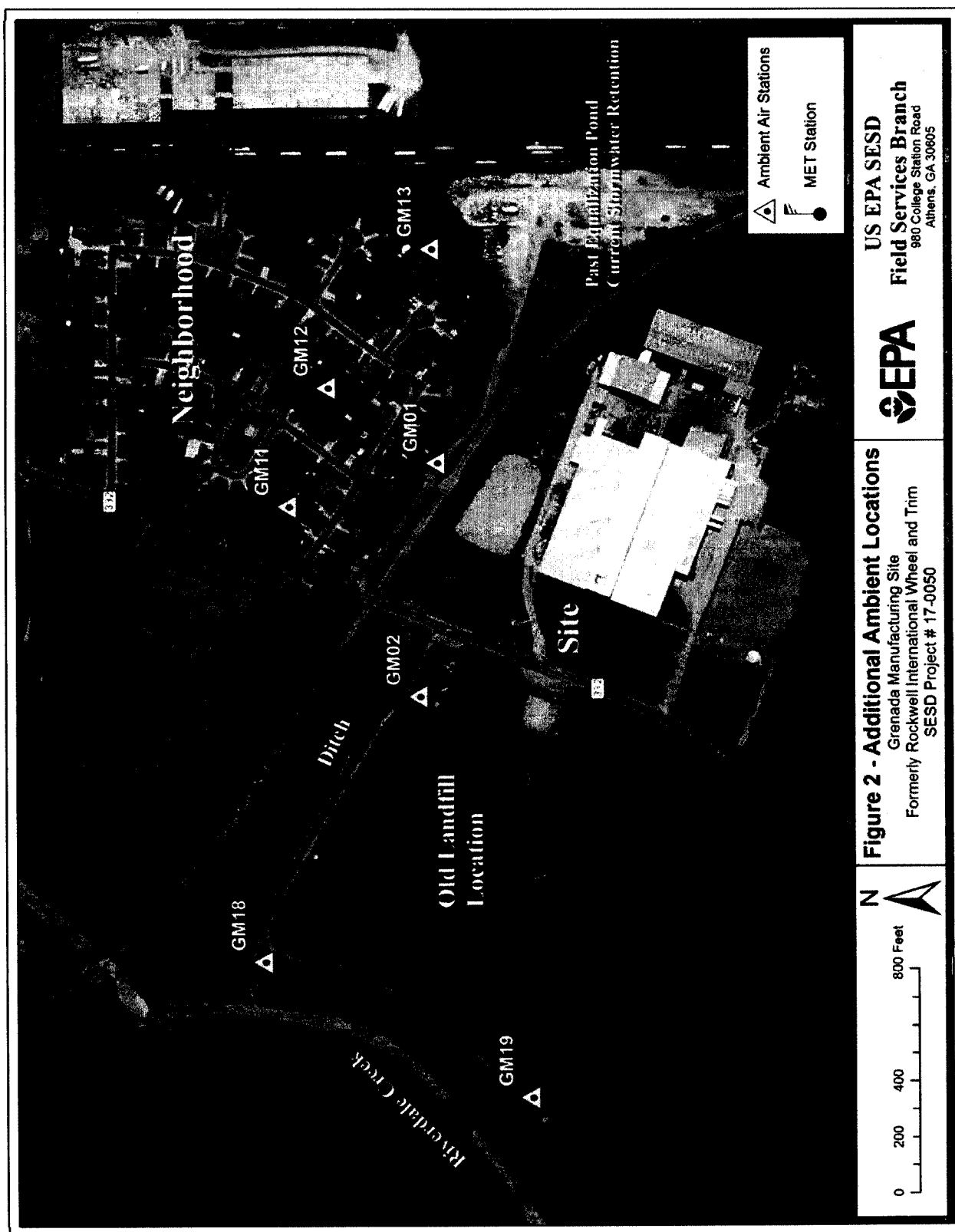




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**Figure 2 - Additional Ambient Locations**  
 Grenada Manufacturing Site  
 Formerly Rockwell International Wheel and Trim  
 SESD Project # 17-0050



**US EPA SESD**  
**Field Services Branch**  
 980 College Station Road  
 Athens, GA 30605



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# **Appendix B**

## **Tables**



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**Table 1 – Station and Sample Information**

Station ID	Sample ID	Location/Address	Latitude*	Longitude*	Matrix
GM01	GM01AA0516	South ambient air location	33.80506895	-89.80015824	Residential Ambient Air
GM11	GM11AA0516	West ambient air location	33.80636768	-89.80076134	
GM12	GM12AA0516	North ambient air location	33.80595308	-89.79941396	
GM13	GM13AA0516	East ambient air location	33.80511017	-89.79804096	
GM02	GM02AA0516	Old Water Treatment Plant	33.805195	-89.802452	Ambient Air
GM18	GM18AA0516	North Landfill	33.80647398	-89.80506815	Ambient Air
GM19	GM19AA0516	South Landfill	33.80430876	-89.80639562	Ambient Air
GM107	GM107SS0516	110 Lyon Drive	33.80507488	-89.79958934	Subslab Soil Gas
	GM107IA0516				Indoor Air
GM108	GM108SS0516	112 Lyon Drive	33.80495638	-89.79941821	Subslab Soil Gas
	GM108IA0516				Indoor Air
GM109	GM109SS0516	114 Lyon Drive	33.80515783	-89.79911873	Subslab Soil Gas
	GM109IA0516				Indoor Air
GM110	GM110SS0516	116 Rockwell Circle	33.80500378	-89.79898326	Subslab Soil Gas
	GM110IA0516				Indoor Air
GM111	GM111SS0516	118 Rockwell Circle	33.80490898	-89.79866952	Subslab Soil Gas
	GM111IA0516				Indoor Air
GM112	GM112SS0516	120 Rockwell Circle	33.80503933	-89.79845561	Subslab Soil Gas
	GM112IA0516				Indoor Air
GM113	GM113SS0516	122 Rockwell Circle	33.8052704	-89.79844848	Subslab Soil Gas
	GM113IA0516				Indoor Air
GM114	GM114SS0516	124 Rockwell Circle	33.80540075	-89.79862674	Subslab Soil Gas
	GM114IA0516				Indoor Air
GM115	GM115SS0516	126 Lyon Drive	33.80551924	-89.79876935	Subslab Soil Gas
	GM115IA0516				Indoor Air
GM116	GM116IA0516	208 Lyon Drive	33.80578586	-89.79914013	Subslab Soil Gas
	GM116SS0516				Indoor Air
GM117	GM117SS0516	210 Lyon Drive	33.80558442	-89.79930412	Subslab Soil Gas
	GM117IA0516				Indoor Air
GM118	GM118SS0516	212 Lyon Drive	33.80544222	-89.79945386	Subslab Soil Gas
	GM118IA0516				Indoor Air
GM119	GM119SS0516	155 Tallahoma Circle	33.80573846	-89.79997438	Subslab Soil Gas
	GM119IA0516				Indoor Air
GM120	GM120SS0516	153 Tallahoma Circle	33.80590436	-89.79983177	Subslab Soil Gas
	GM120IA0516				Indoor Air
GM121	GM121SS0516	151 Tallahoma Drive	33.8060584	-89.7996963	Subslab Soil Gas
	GM121IA0516				Indoor Air
GM122	GM122SS0516	105 Lyon Drive	33.80594583	-89.80039507	Subslab Soil Gas
	GM122IA0516				Indoor Air
GM123	GM123SS0516	103 Lyon Drive	33.80607618	-89.80064464	Subslab Soil Gas
	GM123IA0516				Indoor Air

\* Latitudes and Longitudes for indoor air and sub-slab soil gas samples are recorded for the center of the house, the samples may not be taken directly at that spot.

**Table 2 – QA/QC Sample Information**

Station ID	Sample ID	Location/Address	Latitude*	Longitude*	Matrix
GM01	GM01AA0516D	South ambient air location	33.80506895	-89.80015824	Ambient Air
	GM01AA20516D				
	GM01AA30516D				
GM107	GM107IA0516D	110 Lyon Drive	33.80507488	-89.79958934	Indoor Air
	GM107SS0516S				Subslab Soil Gas
GM117	GM117IA0516D	210 Lyon Drive	33.80495638	-89.79941821	Indoor Air
	GM117SSD0516S				Subslab Soil Gas
#R4DART#	GMTBA0116	-	-	-	Trip Blank Air
#R4DART#	GMTBB0116	-	-	-	Trip Blank Air
#R4DART#	GMTBC0116	-	-	-	Trip Blank Air

\* Latitudes and Longitudes for indoor air and sub-slab soil gas samples are recorded for the center of the house, the samples may not be taken directly at that spot.

**Table 3 – VOC Analyte List**

Constituent	Air Minimum Detection Limit (MDLs)* ( $\mu\text{g}/\text{m}^3$ )
Benzene	0.067
Chloroform	0.10
Dichloroethane, 1,2-	0.11
Dichloroethene, 1,1-	0.078
Dichloroethene, cis-1,2-	0.083
Dichloroethene, trans-1,2-	0.087
Ethylbenzene	0.092
Methylene chloride	0.077
Tetrachloroethene	0.14
Toluene	0.08
Trichloroethane, 1,1,2-	0.12
Trichloroethene	0.11
Trimethylbenzene, 1,2,4-	0.11
Vinyl chloride	0.053
(m- and/or p-) Xylene	0.19
o-Xylenes	0.093

\* Detection limits are based on the analytical methods and instrumentation used by SESD Analytical Support Branch (ASB)

TABLE 4

118 Rockwell Circle  
Sample Station GM111  
Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Results  
November 2016

Analyte	Location		North Ambient Air Location						South Ambient Air Location						East Ambient Air Location	
	Station ID		GM12		GM01AA1116		GM01AA1116D		GM01AA21116		GM01AA21116D		GM13AA1116		GM13	
	Sample ID	Matrix	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air
Sample Date			11/29/2016 8:00	11/30/2016 8:05	11/29/2016 7:44	11/29/2016 7:44	11/30/2016 7:40	11/30/2016 7:40	11/29/2016 7:40	11/30/2016 7:40	11/29/2016 8:08	11/30/2016 8:08	11/29/2016 8:08	11/30/2016 8:08	11/29/2016 8:08	11/30/2016 8:08
Units			ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3
(m- and/or p-)Xylene			4.6 U	0.49 J.O	4.4 U	4.4 U	0.60 J.O	0.49 J.O	4.7 U	4						
1,2- Trichloroethane			2.9 U	2.8 U	2.8 U	2.8 U	2.6 U	2.7 U	2.9 U	2						
1,1-Dichloroethene (1,1-Dichloroethylene)			1.9 U	1.9 U	1.9 U	1.9 U	1.8 U	1.8 U	2.0 U	1						
1,2,4-Trimethylbenzene			2.6 U	0.38 J.O	2.5 U	2.5 U	0.39 J.O	0.35 J.O	2.6 U	0.2						
1,2- Dichloroethane			2.1 U	2.0 U	2.0 U	2.0 U	1.9 U	1.9 U	2.1 U	1						
Benzene			0.30 J.O	0.50 J.O	0.31 J.O	0.31 J.O	0.52 J.O	0.47 J.O	0.31 J.O	0.4						
Chloroform			2.5 U	2.4 U	2.4 U	2.4 U	2.3 U	2.3 U	2.5 U	2						
Ethylbenzene			2.3 U	2.2 U	2.2 U	2.2 U	2.1 U	2.1 U	2.3 U	2						
Methylene Chloride			1.7 U	1.7 U	1.7 U	1.7 U	1.6 U	1.6 U	1.8 U	1						
Tetrachloroethene (Tetrachloroethylene)			3.5 U	3.4 U	3.4 U	3.4 U	3.2 U	3.3 U	3.6 U	3						
Toluene			0.41 J.O	0.77 J.O	0.40 J.O	0.36 J.O	0.85 J.O	0.74 J.O	0.34 J.O	0.2						
Trichloroethene (Trichloroethylene)			2.8 U	2.7 U	2.7 U	2.7 U	2.5 U	2.6 U	2.8 U	2						
Vinyl chloride			1.3 U	1.3 U	1.3 U	1.3 U	1.2 U	1.2 U	1.3 U	1						
cis-1,2-Dichloroethene			2.1 U	2.0 U	2.0 U	2.0 U	1.9 U	1.9 U	2.1 U	1						
o-Xylene			2.3 U	0.25 J.O	2.2 U	2.2 U	0.27 J.O	0.24 J.O	2.3 U	2						
trans-1,2-Dichloroethene			2.2 U	2.1 U	2.1 U	2.1 U	2.0 U	2.0 U	2.2 U	1						

### Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an estimate
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the Laboratory Data export Files.

TABLE 5

124 Rockwell Circle  
Sample Station GM114  
Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Results  
November 2016

Analyte	Location		North Ambient Air Location				South Ambient Air Location				East Ambient Air Location	
	Station ID	Sample ID	GM12		Matrix	Sample Date	GM01		Matrix	Sample Date	GM13	
			Ambient Air	Ambient Air			Ambient Air	Ambient Air			Ambient Air	Ambient Air
Units												
(m- and/or p-)Xylene	ug/m <sup>3</sup>		4.6 U	0.49 J.O			4.4 U	4.4 U	0.60 J.O		0.49 J.O	4.7 U
1,1,2-Trichloroethane	ug/m <sup>3</sup>		2.9 U	2.8 U			2.8 U	2.8 U	2.6 U		2.7 U	2.9 U
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m <sup>3</sup>		1.9 U	1.9 U			1.9 U	1.9 U	1.8 U		1.8 U	2.0 U
1,2,4-Trimethylbenzene	ug/m <sup>3</sup>		2.6 U	0.38 J.O			2.5 U	2.5 U	0.39 J.O		0.35 J.O	2.6 U
1,2-Dichloroethane	ug/m <sup>3</sup>		2.1 U	2.0 U			2.0 U	2.0 U	1.9 U		1.9 U	2.1 U
Benzene	ug/m <sup>3</sup>		0.30 J.O	0.50 J.O			0.31 J.O	0.31 J.O	0.52 J.O		0.47 J.O	0.31 J.O
Chloroform	ug/m <sup>3</sup>		2.5 U	2.4 U			2.4 U	2.4 U	2.3 U		2.3 U	2.5 U
Ethylbenzene	ug/m <sup>3</sup>		2.3 U	2.2 U			2.2 U	2.2 U	2.1 U		2.1 U	2.3 U
Methylene Chloride	ug/m <sup>3</sup>		1.7 U	1.7 U			1.7 U	1.7 U	1.6 U		1.6 U	1.8 U
Tetrachloroethene (Tetrachloroethylene)	ug/m <sup>3</sup>		3.5 U	3.4 U			3.4 U	3.4 U	3.2 U		3.3 U	3.6 U
Toluene	ug/m <sup>3</sup>		0.41 J.O	0.77 J.O			0.40 J.O	0.36 J.O	0.85 J.O		0.74 J.O	0.34 J.O
Trichloroethene (Trichloroethylene)	ug/m <sup>3</sup>		2.8 U	2.7 U			2.7 U	2.7 U	2.5 U		2.6 U	2.8 U
Vinylchloride	ug/m <sup>3</sup>		1.3 U	1.3 U			1.3 U	1.3 U	1.2 U		1.2 U	1.3 U
cis-1,2-Dichloroethene	ug/m <sup>3</sup>		2.1 U	2.0 U			2.0 U	2.0 U	1.9 U		1.9 U	2.1 U
o-Xylene	ug/m <sup>3</sup>		2.3 U	0.25 J.O			2.2 U	2.2 U	0.27 J.O		0.24 J.O	2.3 U
trans-1,2-Dichloroethene	ug/m <sup>3</sup>		2.2 U	2.1 U			2.1 U	2.1 U	2.0 U		2.0 U	2.2 U

### Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an estimate
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the Laboratory Data export Files.

TABLE 6

110 Lyon Drive  
Sample Station GM107  
Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Results  
November 2016

Location		North Ambient Air Location				South Ambient Air Location				East Ambient Air Location		West Ambient Air Location
Station ID		GM12		GM01		GM13						
Sample ID		GM12AA1116	GM12AA21116	GM01AA1116	GM01AA1116D	GM01AA21116	GM01AA21116D	GM13AA1116	GM13AA21116	GM13AA1116	GM13AA21116	
Matrix		Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	
Sample Date		11/29/2016 8:00	11/30/2016 8:05	11/29/2016 7:44	11/29/2016 7:44	11/30/2016 7:40	11/30/2016 7:40	11/29/2016 8:08	11/30/2016 8:15	11/29/2016 8:08	11/30/2016 8:15	
Analyte	Units											
m- and/or p-Xylene	ug/m3	4.6 U	0.4910	4.4 U	4.4 U	0.6010	0.4910	4.7 U	4.1 U			
1,1,2-Trichloroethane	ug/m3	2.9 U	2.8 U	2.8 U	2.8 U	2.6 U	2.7 U	2.9 U	2.5 U			
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3	1.9 U	1.9 U	1.9 U	1.9 U	1.8 U	1.8 U	2.0 U	1.7 U			
1,2,4-Trimethylbenzene	ug/m3	2.6 U	0.3810	2.5 U	2.5 U	0.3910	0.3510	2.6 U	0.2410			
1,2-Dichloroethane	ug/m3	2.1 U	2.0 U	2.0 U	2.0 U	1.9 U	1.9 U	2.1 U	1.8 U			
Benzene	ug/m3	0.3010	0.5010	0.3110	0.3110	0.5210	0.4710	0.3110	0.4410			
Chloroform	ug/m3	2.5 U	2.4 U	2.4 U	2.4 U	2.3 U	2.3 U	2.5 U	2.2 U			
Ethylbenzene	ug/m3	2.3 U	2.2 U	2.2 U	2.2 U	2.1 U	2.1 U	2.3 U	2.0 U			
Methylene Chloride	ug/m3	1.7 U	1.7 U	1.7 U	1.7 U	1.6 U	1.6 U	1.8 U	1.5 U			
Tetrachloroethene (Tetrachloroethylene)	ug/m3	3.5 U	3.4 U	3.4 U	3.4 U	3.2 U	3.3 U	3.6 U	3.1 U			
Toluene	ug/m3	0.4110	0.7710	0.4010	0.3610	0.8510	0.7410	0.3410	0.5110			
Trichloroethene (Trichloroethylene)	ug/m3	2.8 U	2.7 U	2.7 U	2.7 U	2.5 U	2.6 U	2.8 U	2.5 U			
Vinylchloride	ug/m3	1.3 U	1.3 U	1.3 U	1.3 U	1.2 U	1.2 U	1.3 U	1.2 U			
cis-1,2-Dichloroethene	ug/m3	2.1 U	2.0 U	2.0 U	2.0 U	1.9 U	1.9 U	2.1 U	1.8 U			
o-Xylene	ug/m3	2.3 U	0.2510	2.2 U	2.2 U	0.2710	0.2410	2.3 U	2.0 U			
trans-1,2-Dichloroethene	ug/m3	2.2 U	2.1 U	2.1 U	2.1 U	2.0 U	2.0 U	2.2 U	1.9 U			

### Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the Laboratory Data export Files.

TABLE 7

116 Rockwell Circle  
Sample Station GM110  
Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Results  
November 2016

Location		North Ambient Air Location				South Ambient Air Location				East Ambient Air 1	
Station ID		GM12		GM01				GM13			
Sample ID		GM12AA1116	GM12AA21116	GM01AA1116	GM01AA1116D	GM01AA21116	GM01AA21116D	GM13AA1116	GM13AA1116D		
Matrix		Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air		
Sample Date		11/29/2016 8:00	11/30/2016 8:05	11/29/2016 7:44	11/29/2016 7:44	11/30/2016 7:40	11/30/2016 7:40	11/29/2016 8:08	11/30/2016 8:08		
Analyte	Units										
(m- and/or p-)Xylene	ug/m3	4.6 U	0.49 J.O	4.4 U	4.4 U	0.60 J.O	0.49 J.O	4.7 U	4		
1,1,2-Trichloroethane	ug/m3	2.9 U	2.8 U	2.8 U	2.8 U	2.6 U	2.7 U	2.9 U	2		
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3	1.9 U	1.9 U	1.9 U	1.9 U	1.8 U	1.8 U	2.0 U	1		
1,2,4-Trimethylbenzene	ug/m3	2.6 U	0.38 J.O	2.5 U	2.5 U	0.39 J.O	0.35 J.O	2.6 U	0.2		
1,2-Dichloroethane	ug/m3	2.1 U	2.0 U	2.0 U	2.0 U	1.9 U	1.9 U	2.1 U	1		
Benzene	ug/m3	0.30 J.O	0.50 J.O	0.31 J.O	0.31 J.O	0.52 J.O	0.47 J.O	0.31 J.O	0.2		
Chloroform	ug/m3	2.5 U	2.4 U	2.4 U	2.4 U	2.3 U	2.3 U	2.5 U	2		
Ethylbenzene	ug/m3	2.3 U	2.2 U	2.2 U	2.2 U	2.1 U	2.1 U	2.3 U	2		
Methylene Chloride	ug/m3	1.7 U	1.7 U	1.7 U	1.7 U	1.6 U	1.6 U	1.8 U	1		
Tetrachloroethene (Tetrachloroethylene)	ug/m3	3.5 U	3.4 U	3.4 U	3.4 U	3.2 U	3.3 U	3.6 U	3		
Toluene	ug/m3	0.41 J.O	0.77 J.O	0.40 J.O	0.36 J.O	0.85 J.O	0.74 J.O	0.34 J.O	0.2		
Trichloroethene (Trichloroethylene)	ug/m3	2.8 U	2.7 U	2.7 U	2.7 U	2.5 U	2.6 U	2.8 U	2		
Vinylchloride	ug/m3	1.3 U	1.3 U	1.3 U	1.3 U	1.2 U	1.2 U	1.3 U	1		
cis-1,2-Dichloroethene	ug/m3	2.1 U	2.0 U	2.0 U	2.0 U	1.9 U	1.9 U	2.1 U	1		
o-Xylene	ug/m3	2.3 U	0.25 J.O	2.2 U	2.2 U	0.27 J.O	0.24 J.O	2.3 U	2		
trans-1,2-Dichloroethene	ug/m3	2.2 U	2.1 U	2.1 U	2.1 U	2.0 U	2.0 U	2.2 U	1		

### Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an estimate
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the Laboratory Data export Files.







TABLE 9

122 Rockwell Circle  
Sample Station GM113  
Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Results  
November 2016

Location		North Ambient Air Location				South Ambient Air Location				East Ambient Air Location	
Station ID		GM12			GM01			GM13			
Sample ID		GM12AA1116	GM12AA21116		GM01AA1116	GM01AA1116D	GM01AA21116	GM01AA2116D		GM13AA1116	GM13AA21116
Matrix		Ambient Air	Ambient Air		Ambient Air	Ambient Air	Ambient Air	Ambient Air		Ambient Air	Ambient Air
Sample Date		11/29/2016 8:00	11/30/2016 8:05		11/29/2016 7:44	11/29/2016 7:44	11/30/2016 7:40	11/30/2016 7:40		11/29/2016 8:08	11/30/2016 8:08
Analyte	Units										
(m- and/or p-)Xylene	ug/m3	4.6 U	0.49 J.O		4.4 U	4.4 U	0.60 J.O	0.49 J.O		4.7 U	
1,1,2- Trichloroethane	ug/m3	2.9 U	2.8 U		2.8 U	2.8 U	2.6 U	2.7 U		2.9 U	
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3	1.9 U	1.9 U		1.9 U	1.9 U	1.8 U	1.8 U		2.0 U	
1,2,4- Trimethylbenzene	ug/m3	2.6 U	0.38 J.O		2.5 U	2.5 U	0.39 J.O	0.35 J.O		2.6 U	0.
1,2-Dichloroethane	ug/m3	2.1 U	2.0 U		2.0 U	2.0 U	1.9 U	1.9 U		2.1 U	
Benzene	ug/m3	0.30 J.O	0.50 J.O		0.31 J.O	0.31 J.O	0.52 J.O	0.47 J.O		0.31 J.O	0.
Chlorobenzene	ug/m3	2.5 U	2.4 U		2.4 U	2.4 U	2.3 U	2.3 U		2.5 U	
Ethylbenzene	ug/m3	2.3 U	2.2 U		2.2 U	2.2 U	2.1 U	2.1 U		2.3 U	
Methylene Chloride	ug/m3	1.7 U	1.7 U		1.7 U	1.7 U	1.6 U	1.6 U		1.8 U	
Tetrachloroethene (Tetrachloroethylene)	ug/m3	3.5 U	3.4 U		3.4 U	3.4 U	3.2 U	3.3 U		3.6 U	
Toluene	ug/m3	0.41 J.O	0.77 J.O		0.40 J.O	0.36 J.O	0.85 J.O	0.74 J.O		0.34 J.O	0.
Trichloroethene (Trichloroethylene)	ug/m3	2.8 U	2.7 U		2.7 U	2.7 U	2.5 U	2.6 U		2.8 U	
Vinylchloride	ug/m3	1.3 U	1.3 U		1.3 U	1.3 U	1.2 U	1.2 U		1.3 U	
cis-1,2-Dichloroethene	ug/m3	2.1 U	2.0 U		2.0 U	2.0 U	1.9 U	1.9 U		2.1 U	
o-Xylene	ug/m3	2.3 U	0.25 J.O		2.2 U	2.2 U	0.27 J.O	0.24 J.O		2.3 U	
trans-1,2-Dichloroethene	ug/m3	2.2 U	2.1 U		2.1 U	2.1 U	2.0 U	2.0 U		2.2 U	

### Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
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TABLE 10

151 Tallahoma Drive  
Sample Station GM121  
Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Results  
November 2016

Analyte	North Ambient Air Location			South Ambient Air Location					East Ambient Air Location	
	GM12			GM01					GM13	
	Sample ID	Matrix	Sample Date	Sample ID	Matrix	Sample Date	Sample ID	Matrix	Sample ID	Matrix
(m- and/or p-) Xylene	GM12AA11116	Ambient Air	11/29/2016 8:00	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA11116D	Ambient Air	GM01AA21116	Ambient Air
1,1,2-Trichloroethane	GM12AA21116	Ambient Air	11/30/2016 8:05	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	GM01AA21116D	Ambient Air
1,1-Dichloroethene (1,1-Dichloroethylene)	GM12AA11116	Ambient Air	11/29/2016 8:00	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	GM01AA21116D	Ambient Air
1,2,4-Trime thybenzene	GM12AA21116	Ambient Air	11/30/2016 8:05	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	GM01AA21116D	Ambient Air
1,2-Dichloroethane	GM12AA11116	Ambient Air	11/29/2016 8:00	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	GM01AA21116D	Ambient Air
Benzene	GM12AA21116	Ambient Air	11/30/2016 8:05	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	GM01AA21116D	Ambient Air
Chloroform	GM12AA11116	Ambient Air	11/29/2016 8:00	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	GM01AA21116D	Ambient Air
Ethyl Benzene	GM12AA21116	Ambient Air	11/30/2016 8:05	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	GM01AA21116D	Ambient Air
Methylene Chloride	GM12AA11116	Ambient Air	11/29/2016 8:00	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	GM01AA21116D	Ambient Air
Tetrachloroethene (Tetrachloroethylene)	GM12AA21116	Ambient Air	11/30/2016 8:05	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	GM01AA21116D	Ambient Air
Toluene	GM12AA11116	Ambient Air	11/29/2016 8:00	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	GM01AA21116D	Ambient Air
Trichloroethene (Trichloroethylene)	GM12AA21116	Ambient Air	11/30/2016 8:05	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	GM01AA21116D	Ambient Air
Vinyl chloride	GM12AA11116	Ambient Air	11/29/2016 8:00	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	GM01AA21116D	Ambient Air
cis-1,2-Dichloroethene	GM12AA21116	Ambient Air	11/30/2016 8:05	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	GM01AA21116D	Ambient Air
o-Xylene	GM12AA11116	Ambient Air	11/29/2016 8:00	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	GM01AA21116D	Ambient Air
trans-1,2-Dichloroethene	GM12AA21116	Ambient Air	11/30/2016 8:05	GM01AA11116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	GM01AA21116D	Ambient Air

### Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an estimate
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the Laboratory Data export Files.



TABLE 11

114 Lyon Drive  
Sample Station GM109  
Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Results  
November 2016

Analyte	North Ambient Air Location			South Ambient Air Location						East Ambient Air Location	
	GM12			GM01						GM13	
	Sample ID	Matrix	Sample Date	Sample ID	Matrix	Sample Date	Sample ID	Matrix	Sample Date	Sample ID	Matrix
(m- and/or p-)Xylene	GM12AA1116	Ambient Air	11/29/2016 8:00	GM01AA1116	Ambient Air	11/29/2016 7:44	GM01AA2116D	Ambient Air	11/30/2016 7:40	GM01AA2116D	Ambient Air
1,1,2-Trichloroethane	GM12AA21116	Ambient Air	11/30/2016 8:05	GM01AA1116	Ambient Air	11/29/2016 7:44	GM01AA21116	Ambient Air	11/30/2016 7:40	GM01AA21116D	Ambient Air
1,1-Dichloroethene (1,1-DCE)											
1,2,4-Trimethylbenzene											
1,2-Dichloroethane											
Benzene											
Chloroform											
Ethylbenzene											
Methylene Chloride											
Tetrachloroethene (TCE)											
Toluene											
Trichloroethene (TCE)											
Vinylchloride											
cis-1,2-Dichloroethene											
o-Xylene											
trans-1,2-Dichloroethene											

### Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an estimate
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the Laboratory Data export Files.



TABLE 12

155 Tallahoma Circle  
 Sample Station GM119  
 Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Resu  
 November 2016

Location Station ID Sample ID Matrix Sample Date	North Ambient Air Location				South Ambient Air Location				East Ambient Location	
	GM12		GM01		GM13					
	GM12AA21116	GM12AA31116	GM01AA21116	GM01AA21116D	GM01AA31116	GM01AA31116D	GM13AA21116	GM13		
Ambient Air							Ambient Air			
Analyte	Units									
		11/30/2016 8:05	12/1/2016 8:00	11/30/2016 7:40	11/30/2016 7:40	12/1/2016 7:45	12/1/2016 7:45	11/30/2016 8:15	12/1/2	
m- and/or p-Xylene	ug/m3	0.491,0	0.481,0	0.601,0	0.491,0	0.431,0	4.5 U	4.1 U	4	
1,1,2-Trichloroethane	ug/m3	2.8 U	2.8 U	2.6 U	2.7 U	2.7 U	2.8 U	2.5 U	2	
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U	1	
1,2,4-Trimethylbenzene	ug/m3	0.381,0	0.571,0	0.391,0	0.351,0	0.571,0	0.561,0	0.241,0	0.4	
1,2-Dichloroethane	ug/m3	2.0 U	2.0 U	1.9 U	1.9 U	1.9 U	2.0 U	1.8 U	1	
Benzene	ug/m3	0.501,0	0.491,0	0.521,0	0.471,0	0.471,0	0.461,0	0.441,0	0.4	
Chloroform	ug/m3	2.4 U	2.4 U	2.3 U	2.3 U	2.3 U	2.4 U	2.2 U	2	
EthylBenzene	ug/m3	2.2 U	2.2 U	2.1 U	2.1 U	2.1 U	2.2 U	2.0 U	2	
Methylene Chloride	ug/m3	1.7 U	1.7 U	1.6 U	1.6 U	1.6 U	1.7 U	1.5 U	1	
Tetrachloroethene (Tetrachloroethylene)	ug/m3	3.4 U	3.4 U	3.2 U	3.3 U	3.3 U	3.4 U	3.1 U	3	
Toluene	ug/m3	0.771,0	0.721,0	0.851,0	0.741,0	0.721,0	0.721,0	0.511,0	0.5	
Trichloroethene (Trichloroethylene)	ug/m3	2.7 U	2.7 U	2.5 U	2.6 U	2.6 U	2.7 U	2.5 U	2	
Vinylchloride	ug/m3	1.3 U	1.3 U	1.2 U	1.2 U	1.2 U	1.3 U	1.2 U	1	
cis-1,2-Dichloroethene	ug/m3	2.0 U	2.0 U	1.9 U	1.9 U	1.9 U	2.0 U	1.8 U	1	
o-Xylene	ug/m3	0.251,0	0.261,0	0.271,0	0.241,0	0.241,0	0.271,0	2.0 U	2	
trans-1,2-Dichloroethene	ug/m3	2.1 U	2.1 U	2.0 U	2.0 U	2.0 U	2.1 U	1.9 U	1	

### Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the Laboratory Data export Files.





TABLE 13

208 Lyon Drive  
Sample Station GM116  
Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Results  
November 2016

Analyte	Units	North Ambient Air Location		South Ambient Air Location				East Ambient Location	
		GM12		GM01				GM13	
		Sample ID	Matrix	Sample ID	Matrix	Sample ID	Matrix	Sample ID	Matrix
Sample Date		11/30/2016 8:05	12/1/2016 8:00	11/30/2016 7:40	11/30/2016 7:40	12/1/2016 7:45	12/1/2016 7:45	11/30/2016 8:15	12/1/2
im- and/or p-Xylene	ug/m3	0.491.0	0.481.0	0.601.0	0.491.0	0.431.0	4.5 U	4.1 U	4.
1,1,2-Trichloroethane	ug/m3	2.8 U	2.8 U	2.6 U	2.7 U	2.7 U	2.8 U	2.5 U	2.
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U	1.
1,2,4-Trimethylbenzene	ug/m3	0.381.0	0.571.0	0.391.0	0.351.0	0.571.0	0.561.0	0.241.0	0.4
1,2-Dichloromethane	ug/m3	2.0 U	2.0 U	1.9 U	1.9 U	1.9 U	2.0 U	1.8 U	1.
Benzene	ug/m3	0.501.0	0.491.0	0.521.0	0.471.0	0.471.0	0.461.0	0.441.0	0.4
Chloroform	ug/m3	2.4 U	2.4 U	2.3 U	2.3 U	2.3 U	2.4 U	2.2 U	2.
Ethylbenzene	ug/m3	2.2 U	2.2 U	2.1 U	2.1 U	2.1 U	2.2 U	2.0 U	2.
Methylene Chloride	ug/m3	1.7 U	1.7 U	1.6 U	1.6 U	1.6 U	1.7 U	1.5 U	1.
Tetrachloroethene (Tetrachloroethylene)	ug/m3	3.4 U	3.4 U	3.2 U	3.3 U	3.3 U	3.4 U	3.1 U	3.
Toluene	ug/m3	0.771.0	0.721.0	0.851.0	0.741.0	0.721.0	0.721.0	0.511.0	0.5
Trichloroethene (Trichloroethylene)	ug/m3	2.7 U	2.7 U	2.5 U	2.6 U	2.6 U	2.7 U	2.5 U	2.
Vinylchloride	ug/m3	1.3 U	1.3 U	1.2 U	1.2 U	1.2 U	1.3 U	1.2 U	1.
cis-1,2-Dichloroethene	ug/m3	2.0 U	2.0 U	1.9 U	1.9 U	1.9 U	2.0 U	1.8 U	1.
o-Xylene	ug/m3	0.251.0	0.261.0	0.271.0	0.241.0	0.241.0	0.271.0	2.0 U	2.
trans-1,2-Dichloroethene	ug/m3	2.1 U	2.1 U	2.0 U	2.0 U	2.0 U	2.1 U	1.9 U	1.

### Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an
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TABLE 14

112 Lyon Dive  
Sample Station GM108  
Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Results  
November 2016

Analyte	North Ambient Air Location		South Ambient Air Location				East Ambient Location	
	GM12		GM01				GM13	
	Station ID	Sample ID	Station ID	Sample ID	Station ID	Sample ID	Station ID	Sample ID
Matrix	Ambient Air		Ambient Air				Ambient Air	
Sample Date	11/30/2016 8:05	12/1/2016 8:00	11/30/2016 7:40	11/30/2016 7:40	12/1/2016 7:45	12/1/2016 7:45	11/30/2016 8:15	12/1/2
(m- and/or p-) Xylene	0.4910	0.4810	0.6010	0.4910	0.4310	4.5 U	4.1 U	4
1,1,2-Trichloroethane	2.8 U	2.8 U	2.6 U	2.7 U	2.7 U	2.8 U	2.5 U	2
1,1-Dichloroethene (1,1-Dichloroethylene)	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U	1
1,2,4-Trimethylbenzene	0.3810	0.5710	0.3910	0.3510	0.5710	0.5610	0.2410	0.4
1,2-Dichloromethane	2.0 U	2.0 U	1.9 U	1.9 U	1.9 U	2.0 U	1.8 U	1
Benzene	0.5010	0.4910	0.5210	0.4710	0.4710	0.4610	0.4410	0.4
Chloroform	2.4 U	2.4 U	2.3 U	2.3 U	2.3 U	2.4 U	2.2 U	2
Ethylbenzene	2.2 U	2.2 U	2.1 U	2.1 U	2.1 U	2.2 U	2.0 U	2
Methylene Chloride	1.7 U	1.7 U	1.6 U	1.6 U	1.6 U	1.7 U	1.5 U	1
Tetrachloroethene (Tetrachloroethylene)	3.4 U	3.4 U	3.2 U	3.3 U	3.3 U	3.4 U	3.1 U	3
Toluene	0.7710	0.7210	0.8510	0.7410	0.7210	0.7210	0.5110	0.5
Trichloroethene (Trichloroethylene)	2.7 U	2.7 U	2.5 U	2.6 U	2.6 U	2.7 U	2.5 U	2
Vinylchloride	1.3 U	1.3 U	1.2 U	1.2 U	1.2 U	1.3 U	1.2 U	1
cis-1,2-Dichloroethene	2.0 U	2.0 U	1.9 U	1.9 U	1.9 U	2.0 U	1.8 U	1
o-Xylene	0.2510	0.2610	0.2710	0.2410	0.2410	0.2710	2.0 U	2
trans-1,2-Dichloroethene	2.1 U	2.1 U	2.0 U	2.0 U	2.0 U	2.1 U	1.9 U	1

### Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the Laboratory Data export Files.



TABLE 15

105 Lyon Drive  
Sample Station GM122  
Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Results  
November 2016

Location		North Ambient Air Location				South Ambient Air Location				East Ambient Location	
Station ID		GM12				GM01				GM13	
Sample ID		GM12AA21116	GM12AA31116	GM01AA21116	GM01AA21116D	GM01AA31116	GM01AA31116D	GM13AA21116	GM13		
Matrix		Ambient Air				Ambient Air				Ambient Air	
Sample Date		11/30/2016 8:05	12/1/2016 8:00	11/30/2016 7:40	11/30/2016 7:40	12/1/2016 7:45	12/1/2016 7:45	11/30/2016 8:15	12/1/2		
Analyte	Units										
(m- and/or p-) Xylene	ug/m3	0.491,0	0.481,0	0.601,0	0.491,0	0.431,0	4.5 U	4.1 U	4		
1,1,2-Trichloroethane	ug/m3	2.8 U	2.8 U	2.6 U	2.7 U	2.7 U	2.8 U	2.5 U	2		
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U	1		
1,2,4-Trimethybenzene	ug/m3	0.381,0	0.571,0	0.391,0	0.351,0	0.571,0	0.561,0	0.241,0	0.4		
1,2-Dichloroethane	ug/m3	2.0 U	2.0 U	1.9 U	1.9 U	1.9 U	2.0 U	1.8 U	1		
Benzene	ug/m3	0.501,0	0.491,0	0.521,0	0.471,0	0.471,0	0.461,0	0.441,0	0.4		
Chloroform	ug/m3	2.4 U	2.4 U	2.3 U	2.3 U	2.3 U	2.4 U	2.2 U	2		
Ethylbenzene	ug/m3	2.2 U	2.2 U	2.1 U	2.1 U	2.1 U	2.2 U	2.0 U	2		
Methylene Chloride	ug/m3	1.7 U	1.7 U	1.6 U	1.6 U	1.6 U	1.7 U	1.5 U	1		
Tetrachloroethene (Tetrachloroethylene)	ug/m3	3.4 U	3.4 U	3.2 U	3.3 U	3.3 U	3.4 U	3.1 U	3		
Toluene	ug/m3	0.771,0	0.721,0	0.851,0	0.741,0	0.721,0	0.721,0	0.511,0	0.5		
Trichloroethene (Trichloroethylene)	ug/m3	2.7 U	2.7 U	2.5 U	2.6 U	2.6 U	2.7 U	2.5 U	2		
Vinylchloride	ug/m3	1.3 U	1.3 U	1.2 U	1.2 U	1.2 U	1.3 U	1.2 U	1		
cis-1,2-Dichloroethene	ug/m3	2.0 U	2.0 U	1.9 U	1.9 U	1.9 U	2.0 U	1.8 U	1		
o-Xylene	ug/m3	0.251,0	0.261,0	0.271,0	0.241,0	0.241,0	0.271,0	2.0 U	2		
trans-1,2-Dichloroethene	ug/m3	2.1 U	2.1 U	2.0 U	2.0 U	2.0 U	2.1 U	1.9 U	1		

### Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an
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TABLE 16

212 Lyon Drive  
Sample Station GM118  
Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Results  
November 2016

Analyte	Units	North Ambient Air Location				South Ambient Air Location				East Ambient Location	
		GM12		GM01		GM13		GM13		GM13	
		Sample ID	Matrix	Sample ID	Matrix	Sample ID	Matrix	Sample ID	Matrix	Sample ID	Matrix
Sample Date		11/30/2016 8:05	12/1/2016 8:00	11/30/2016 7:40	11/30/2016 7:40	12/1/2016 7:45	12/1/2016 7:45	11/30/2016 8:15	12/1/2		
im- and/or p- Xylene	ug/m <sup>3</sup>	0.4910	0.4810	0.6010	0.4910	0.4310	4.5 U	4.1 U	4.		
1,1,2- Trichloroethane	ug/m <sup>3</sup>	2.8 U	2.8 U	2.6 U	2.7 U	2.7 U	2.8 U	2.5 U	2.		
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m <sup>3</sup>	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U	1.		
1,2,4- Trimethylbenzene	ug/m <sup>3</sup>	0.3810	0.5710	0.3910	0.3510	0.5710	0.5610	0.2410	0.4		
1,2-Dichloroethane	ug/m <sup>3</sup>	2.0 U	2.0 U	1.9 U	1.9 U	1.9 U	2.0 U	1.8 U	1.		
Benzene	ug/m <sup>3</sup>	0.5010	0.4910	0.5210	0.4710	0.4710	0.4610	0.4410	0.4		
Chloroform	ug/m <sup>3</sup>	2.4 U	2.4 U	2.3 U	2.3 U	2.3 U	2.4 U	2.2 U	2.		
EthylBenzene	ug/m <sup>3</sup>	2.2 U	2.2 U	2.1 U	2.1 U	2.1 U	2.2 U	2.0 U	2.		
Methylene Chloride	ug/m <sup>3</sup>	1.7 U	1.7 U	1.6 U	1.6 U	1.6 U	1.7 U	1.5 U	1.		
Tetrachloroethene (Tetrachloroethylene)	ug/m <sup>3</sup>	3.4 U	3.4 U	3.2 U	3.3 U	3.3 U	3.4 U	3.1 U	3.		
Toluene	ug/m <sup>3</sup>	0.7710	0.7210	0.8510	0.7410	0.7210	0.7210	0.5110	0.5		
Trichloroethene (Trichloroethylene)	ug/m <sup>3</sup>	2.7 U	2.7 U	2.5 U	2.6 U	2.6 U	2.7 U	2.5 U	2.		
Vinyl chloride	ug/m <sup>3</sup>	1.3 U	1.3 U	1.2 U	1.2 U	1.2 U	1.3 U	1.2 U	1.		
cis-1,2-Dichloroethene	ug/m <sup>3</sup>	2.0 U	2.0 U	1.9 U	1.9 U	1.9 U	2.0 U	1.8 U	1.		
o-Xylene	ug/m <sup>3</sup>	0.2510	0.2610	0.2710	0.2410	0.2410	0.2710	2.0 U	2.		
trans-1,2-Dichloroethene	ug/m <sup>3</sup>	2.1 U	2.1 U	2.0 U	2.0 U	2.0 U	2.1 U	1.9 U	1.		

### Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the Laboratory Data export Files.





TABLE 17

210 Lyon Drive  
 Sample Station GM117  
 Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Results  
 November 2016

Location		North Ambient Air Location				South Ambient Air Location				East Ambient Air Location		West
Station ID		GM12		GM01				GM13				
Sample ID		GM12AA21116	GM12AA31116	GM01AA21116	GM01AA21116D	GM01AA31116	GM01AA31116D	GM13AA21116	GM13AA31116	GM11A		
Matrix		Ambient Air		Ambient Air				Ambient Air				
Sample Date		11/30/2016 8:05	12/1/2016 8:00	11/30/2016 7:40	11/30/2016 7:40	12/1/2016 7:45	12/1/2016 7:45	11/30/2016 8:15	12/1/2016 8:10	11/30/2016		
Analyte	Units											
(m- and/or p-)Xylene	ug/m3	0.49 LO	0.48 LO	0.60 LO	0.49 LO	0.43 LO	4.5 U	4.1 U	4.0 U	0.59		
1,1,2-Trichloroethane	ug/m3	2.8 U	2.8 U	2.6 U	2.7 U	2.7 U	2.8 U	2.5 U	2.5 U	2.8		
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U	1.7 U	1.9		
1,2,4-Trimethylbenzene	ug/m3	0.38 LO	0.57 LO	0.39 LO	0.35 LO	0.57 LO	0.56 LO	0.24 LO	0.42 LO	0.43		
1,2-Dichloroethane	ug/m3	2.0 U	2.0 U	1.9 U	1.9 U	1.9 U	2.0 U	1.8 U	1.8 U	2.0		
Benzene	ug/m3	0.50 LO	0.49 LO	0.52 LO	0.47 LO	0.47 LO	0.46 LO	0.44 LO	0.41 LO	0.52		
Chloroform	ug/m3	2.4 U	2.4 U	2.3 U	2.3 U	2.3 U	2.4 U	2.2 U	2.2 U	2.5		
Ethylbenzene	ug/m3	2.2 U	2.2 U	2.1 U	2.1 U	2.1 U	2.2 U	2.0 U	2.0 U	2.2		
Methylene Chloride	ug/m3	1.7 U	1.7 U	1.6 U	1.6 U	1.6 U	1.7 U	1.5 U	1.5 U	1.7		
Tetrachloroethene (Tetrachloroethylene)	ug/m3	3.4 U	3.4 U	3.2 U	3.3 U	3.3 U	3.4 U	3.1 U	3.1 U	3.5		
Toluene	ug/m3	0.77 LO	0.72 LO	0.85 LO	0.74 LO	0.72 LO	0.72 LO	0.51 LO	0.54 LO	0.85		
Trichloroethene (Trichloroethylene)	ug/m3	2.7 U	2.7 U	2.5 U	2.6 U	2.6 U	2.7 U	2.5 U	2.5 U	2.8		
Vinyl chloride	ug/m3	1.3 U	1.3 U	1.2 U	1.2 U	1.2 U	1.3 U	1.2 U	1.2 U	1.3		
cis-1,2-Dichloroethene	ug/m3	2.0 U	2.0 U	1.9 U	1.9 U	1.9 U	2.0 U	1.8 U	1.8 U	2.0		
o-Xylene	ug/m3	0.25 LO	0.26 LO	0.27 LO	0.24 LO	0.24 LO	0.27 LO	2.0 U	2.0 U	0.30		
trans-1,2-Dichloroethene	ug/m3	2.1 U	2.1 U	2.0 U	2.0 U	2.0 U	2.1 U	1.9 U	1.9 U	2.1		

### Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the Laboratory Data export files.



TABLE 18

126 Lyon Drive  
Sample Station GM115  
Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Results  
November 2016

Location Station ID Sample ID Matrix Sample Date	North Ambient Air Location		South Ambient Air Location				East Ambient Location	
	GM12		GM01				GM13	
	GM12AA21116	GM12AA31116	GM01AA21116	GM01AA21116D	GM01AA31116	GM01AA31116D	GM13AA21116	GM13
Ambient Air		Ambient Air	Ambient Air				Ambient Air	
11/30/2016 8:05		12/1/2016 8:00	11/30/2016 7:40	11/30/2016 7:40	12/1/2016 7:45	12/1/2016 7:45	11/30/2016 8:15	12/1/2
Analyte	Units							
o-m- and/or p-Xylene	ug/m3	0.49 LO	0.48 LO	0.60 LO	0.49 LO	0.43 LO	4.5 U	4.1 U
1,1,2-Trichloroethane	ug/m3	2.8 U	2.8 U	2.6 U	2.7 U	2.7 U	2.8 U	2.5 U
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	1.7 U
1,2,4-Trimethylbenzene	ug/m3	0.38 LO	0.57 LO	0.39 LO	0.35 LO	0.57 LO	0.56 LO	0.24 LO
1,2-Dichloroethane	ug/m3	2.0 U	2.0 U	1.9 U	1.9 U	1.9 U	2.0 U	1.8 U
Benzene	ug/m3	0.50 LO	0.49 LO	0.52 LO	0.47 LO	0.47 LO	0.46 LO	0.44 LO
Chloroform	ug/m3	2.4 U	2.4 U	2.3 U	2.3 U	2.3 U	2.4 U	2.2 U
Ethylbenzene	ug/m3	2.2 U	2.2 U	2.1 U	2.1 U	2.1 U	2.2 U	2.0 U
Methylene Chloride	ug/m3	1.7 U	1.7 U	1.6 U	1.6 U	1.6 U	1.7 U	1.5 U
Tetrachloroethene (Tetrachloroethylene)	ug/m3	3.4 U	3.4 U	3.2 U	3.3 U	3.3 U	3.4 U	3.1 U
Toluene	ug/m3	0.77 LO	0.72 LO	0.85 LO	0.74 LO	0.72 LO	0.72 LO	0.51 LO
Trichloroethene (Trichloroethylene)	ug/m3	2.7 U	2.7 U	2.5 U	2.6 U	2.6 U	2.7 U	2.5 U
Vinylchloride	ug/m3	1.3 U	1.3 U	1.2 U	1.2 U	1.2 U	1.3 U	1.2 U
cis-1,2-Dichloroethene	ug/m3	2.0 U	2.0 U	1.9 U	1.9 U	1.9 U	2.0 U	1.8 U
o-Xylene	ug/m3	0.25 LO	0.26 LO	0.27 LO	0.24 LO	0.24 LO	0.27 LO	2.0 U
trans-1,2-Dichloroethene	ug/m3	2.1 U	2.1 U	2.0 U	2.0 U	2.0 U	2.1 U	1.9 U

### Detects are Highlighted

#### DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS

Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an
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TABLE 19

153 Tallahoma Circle  
Sample Station GM120  
Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Resu  
November 2016

Location Station ID Sample ID Matrix Sample Date	North Ambient Air Location		South Ambient Air Location				East Ambient Location	
	GM12		GM01				GM13	
	GM12AA21116	GM12AA31116	GM01AA21116	GM01AA21116D	GM01AA31116	GM01AA31116D	GM13AA21116	GM13
	Ambient Air		Ambient Air				Ambient Air	
	11/30/2016 8:05	12/1/2016 8:00	11/30/2016 7:40	11/30/2016 7:40	12/1/2016 7:45	12/1/2016 7:45	11/30/2016 8:15	12/1/2
Analyte	Units							
(m- and/or p-) Xylene	ug/m <sup>3</sup>	0.491.0	0.481.0	0.601.0	0.491.0	0.431.0	4.5U	4.1U
1,1,2- Trichloroethane	ug/m <sup>3</sup>	2.8U	2.8U	2.6U	2.7U	2.7U	2.8U	2.5U
1,1- Dichloroethene (1,1- Dichloroethylene)	ug/m <sup>3</sup>	1.9U	1.9U	1.8U	1.8U	1.8U	1.9U	1.7U
1,2,4- Trimethylbenzene	ug/m <sup>3</sup>	0.381.0	0.571.0	0.391.0	0.351.0	0.571.0	0.561.0	0.241.0
1,2- Dichloroethane	ug/m <sup>3</sup>	2.0U	2.0U	1.9U	1.9U	1.9U	2.0U	1.8U
Benzene	ug/m <sup>3</sup>	0.501.0	0.491.0	0.521.0	0.471.0	0.471.0	0.461.0	0.441.0
Chlorobrom	ug/m <sup>3</sup>	2.4U	2.4U	2.3U	2.3U	2.3U	2.4U	2.2U
Ethylbenzene	ug/m <sup>3</sup>	2.2U	2.2U	2.1U	2.1U	2.1U	2.2U	2.0U
Methylene Chloride	ug/m <sup>3</sup>	1.7U	1.7U	1.6U	1.6U	1.6U	1.7U	1.5U
Tetrachloroethene (Tetrachloroethylene)	ug/m <sup>3</sup>	3.4U	3.4U	3.2U	3.3U	3.3U	3.4U	3.1U
Toluene	ug/m <sup>3</sup>	0.771.0	0.721.0	0.851.0	0.741.0	0.721.0	0.721.0	0.511.0
Trichloroethene (Trichloroethylene)	ug/m <sup>3</sup>	2.7U	2.7U	2.5U	2.6U	2.6U	2.7U	2.5U
Vinylchloride	ug/m <sup>3</sup>	1.3U	1.3U	1.2U	1.2U	1.2U	1.3U	1.2U
cis- 1,2- Dichloroethene	ug/m <sup>3</sup>	2.0U	2.0U	1.9U	1.9U	1.9U	2.0U	1.8U
o- Xylene	ug/m <sup>3</sup>	0.251.0	0.261.0	0.271.0	0.241.0	0.241.0	0.271.0	2.0U
trans- 1,2- Dichloroethene	ug/m <sup>3</sup>	2.1U	2.1U	2.0U	2.0U	2.0U	2.1U	1.9U

### Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
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TABLE 20

103 Lyon Drive  
Sample Station GM123  
Ambient Air, Indoor Air and Sub-Slab Soil Gas VOC Analytical Resu  
November 2016

Analyte	Units	North		South Ambient Air		East Ambient	West
		Ambient Air	Location	Location	GM01	Air Location	Ambient A
Sample ID		GM12				GM13	GM11
Station ID		GM12AA31116		GM01AA31116		GM13AA31116	GM11AA31116
Sample ID		GM12AA31116		GM01AA31116		GM13AA31116	GM11AA31116
Matrix		Ambient Air		Ambient Air		Ambient Air	Ambient Ai
Sample Date		12/1/2016 8:00		12/1/2016 7:45	12/1/2016 7:45	12/1/2016 8:10	12/1/2016 7:55
om- and/orp- Xylene	ug/m3	0.481.0		0.431.0	4.5 U	4.0 U	0.671.0
1,1,2- Trichloroethane	ug/m3	2.8 U		2.7 U	2.8 U	2.5 U	2.8 U
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3	1.9 U		1.8 U	1.9 U	1.7 U	1.9 U
1,2,4- Trimethylbenzene	ug/m3	0.571.0		0.571.0	0.561.0	0.421.0	0.711.0
1,2-Dichloroethane	ug/m3	2.0 U		1.9 U	2.0 U	1.8 U	2.0 U
Benzene	ug/m3	0.491.0		0.471.0	0.461.0	0.411.0	0.551.0
Chloroform	ug/m3	2.4 U		2.3 U	2.4 U	2.2 U	2.5 U
EthylBenzene	ug/m3	2.2 U		2.1 U	2.2 U	2.0 U	0.241.0
Methylene Chloride	ug/m3	1.7 U		1.6 U	1.7 U	1.5 U	1.7 U
Tetrachloroethene (Tetrachloroethylene)	ug/m3	3.4 U		3.3 U	3.4 U	3.1 U	3.5 U
Toluene	ug/m3	0.721.0		0.721.0	0.721.0	0.541.0	1.01.0
Trichloroethene (Trichloroethylene)	ug/m3	2.7 U		2.6 U	2.7 U	2.5 U	0.291.0
Vinyl chloride	ug/m3	1.3 U		1.2 U	1.3 U	1.2 U	1.3 U
cis-1,2-Dichloroethene	ug/m3	2.0 U		1.9 U	2.0 U	1.8 U	2.0 U
o-Xylene	ug/m3	0.261.0		0.241.0	0.271.0	2.0 U	0.371.0
trans-1,2-Dichloroethene	ug/m3	2.1 U		2.0 U	2.1 U	1.9 U	2.1 U

### Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the Laboratory Data export Files.





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TABLE 21

## Co-Located Duplicate Comparisons of the South Ambient Air Location

South Ambient Air Location									
GM01									
Station ID	GM01AA1116		GM01AA21116		GM01AA31116		GM01AA3116D		
Sample ID	GM01AA1116		GM01AA21116		GM01AA31116		GM01AA3116D		
Matrix	Ambient Air		Ambient Air		Ambient Air		Ambient Air		
Sample Date	11/29/2016 7:44		11/30/2016 7:40		12/1/2016 7:45				
Analyte	Units								
(m- and/or p-)Xylene	ug/m <sup>3</sup>	-	-	0.60	0.49	20.18%	0.43	0.19	77.42%
1,1,2-Trichloroethane	ug/m <sup>3</sup>	-	-	-	-	-	-	-	-
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m <sup>3</sup>	-	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	ug/m <sup>3</sup>	-	-	0.39	0.35	10.81%	0.57	0.56	1.77%
1,2-Dichloroethane	ug/m <sup>3</sup>	-	-	-	-	-	-	-	-
Benzene	ug/m <sup>3</sup>	0.31	0.31	0.52	0.47	10.10%	0.47	0.46	2.15%
Chloroform	ug/m <sup>3</sup>	-	-	-	-	-	-	-	-
EthylBenzene	ug/m <sup>3</sup>	-	-	-	-	-	-	-	-
Methylene Chloride	ug/m <sup>3</sup>	-	-	-	-	-	-	-	-
Tetrachloroethene (Tetrachloroethylene)	ug/m <sup>3</sup>	-	-	-	-	-	-	-	-
Toluene	ug/m <sup>3</sup>	0.40	0.36	0.85	0.74	13.84%	0.72	0.72	0.00%
Trichloroethene (Trichloroethylene)	ug/m <sup>3</sup>	-	-	-	-	-	-	-	-
Vinylchloride	ug/m <sup>3</sup>	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	ug/m <sup>3</sup>	-	-	-	-	-	-	-	-
o-Xylene	ug/m <sup>3</sup>	-	-	0.27	0.24	11.76%	0.24	0.27	11.76%
trans-1,2-Dichloroethene	ug/m <sup>3</sup>	-	-	-	-	-	-	-	-

## Detects are Highlighted

\*\* The percent difference calculation for (m- and/or p-)Xylene in sample GM01AA31116D was conducted using the Method Detection Level (MDL) of 0.19ug/m<sup>3</sup> due to the non detection of the analyte.

Data qualifiers were left out of this table for sake of calculations.



TABLE 22

Co-Located Duplicate Comparisons of Indoor Air and Soil Gas Split Samples at 110 Lyon Drive

110 Lyon Drive						
GM107						
Station ID	GM107A1116		GM107SS1116		GM107SS116S	
Sample ID	GM107A1116		GM107SS1116		GM107SS116S	
Matrix	Indoor Air		Soil Gas		Soil Gas	
Sample Date	11/29/2016 12:00		11/29/2016 11:18		11/29/2016 11:18	
Analyte	Units					
m- and/orp- Xylene	ug/m3	0.7	0.66	5.88%	-	-
1,1,2- Trichloroethane	ug/m3	-	-		-	-
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3	-	-		-	-
1,2,4- Trimethylbenzene	ug/m3	-	-		-	-
1,2-Dichloroethane	ug/m3	0.45	0.46	2.20%	-	-
Benzene	ug/m3	0.56	0.57	1.77%	-	-
Chloroform	ug/m3	0.61	0.63	3.23%	-	-
EthylBenzene	ug/m3	0.26	0.27	3.77%	-	-
Methylene Chloride	ug/m3	-	-		-	-
Tetrachloroethene (Tetrachloroethylene)	ug/m3	-	-		-	-
Toluene	ug/m3	6.2	6.3	1.60%	-	-
Trichloroethene (Trichloroethylene)	ug/m3	-	-		-	-
Vinylchloride	ug/m3	-	-		-	-
cis-1,2-Dichloroethene	ug/m3	-	-		-	-
o-Xylene	ug/m3	0.29	0.3	3.39%	-	-
trans-1,2-Dichloroethene	ug/m3	-	-		-	-

Detects are Highlighted

Data qualifiers were left out of this table for sake of calculations



TABLE 23

## Co-located Duplicate Comparisons of Indoor Air and Soil Gas Split Samples at 210 Lyon Drive

210 Lyon Drive							
Station ID				GM117			
Sample ID	GM17A1116	GM17A1116D	Percent Difference	GM17SS1116	GM17SS1116S	Percent Difference	
Matrix	Indoor Air			Soil Gas			
Sample Date	11/30/2016 15:22		%	11/30/2016 14:37		%	
Analyte	Units						
(m- and/or p-)Xylene	ug/m <sup>3</sup>	0.65	0.74	12.95%	-	-	
1,1,2-Trichloroethane	ug/m <sup>3</sup>	-	-	-	-	-	
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m <sup>3</sup>	-	-	-	-	-	
1,2,4-Trimethylbenzene	ug/m <sup>3</sup>	0.56	0.58	3.51%	-	-	
1,2-Dichloroethane	ug/m <sup>3</sup>	1.0	0.99	1.01%	0.25	0.11	77.78%
Benzene	ug/m <sup>3</sup>	0.99	1.0	1.01%	0.34	0.34	0.00%
Chloroform	ug/m <sup>3</sup>	0.58	0.53	9.01%	0.57	0.57	0.00%
Ethylbenzene	ug/m <sup>3</sup>	0.27	0.30	10.53%	-	-	
Methylene Chloride	ug/m <sup>3</sup>	-	-	-	-	-	
Tetrachloroethene (Tetrachloroethylene)	ug/m <sup>3</sup>	-	-	0.45	0.46	2.20%	
Toluene	ug/m <sup>3</sup>	2.0	2.1	4.88%	0.57	0.56	1.77%
Trichloroethene (Trichloroethylene)	ug/m <sup>3</sup>	-	-	-	-	-	
Vinylchloride	ug/m <sup>3</sup>	-	-	-	-	-	
cis-1,2-Dichloroethene	ug/m <sup>3</sup>	-	-	-	-	-	
o-Xylene	ug/m <sup>3</sup>	0.35	0.39	10.81%	-	-	
trans-1,2-Dichloroethene	ug/m <sup>3</sup>	-	-	-	-	-	

\*\*see note below

## Detects are Highlighted

\*\* The percent difference calculation for 1,2-Dichloroethane in sample GM108SSS0516 was conducted using the Method Detection Level (MDL) of 0.11ug/m<sup>3</sup> due to the non detection of the analyte.

Data qualifiers were left out of this table for sake of calculations





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TABLE 24

24-Hour Ambient Samples Collected November 29 – 30, 2016

Analyte	Units	Location					
		South Landfill Ambient Air Location	North Landfill Ambient Air Location	Old Water Treatment Plant Ambient Air Location	West Ambient Air Location	South Ambient Air Location	
		GM19	GM18	GM02	GM11	GM01	
		GM19AA1116	GM18AA1116	GM02AA1116	GM11AA1116	GM01AA1116	GM01AA1116D
Sample Date	Matrix	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air
11/29/2016 7:12			11/29/2016 7:21	11/29/2016 7:28	11/29/2016 7:50	11/29/2016 7:44	11/29/2016 7:44
11/29/2016 8:00							
11/29/2016 8:08							
11/29/2016 8:10							
11/29/2016 8:30							
11/29/2016 8:40							
11/29/2016 8:50							
11/29/2016 9:00							
11/29/2016 9:10							
11/29/2016 9:20							
11/29/2016 9:30							
11/29/2016 9:40							
11/29/2016 9:50							
11/29/2016 10:00							
11/29/2016 10:10							
11/29/2016 10:20							
11/29/2016 10:30							
11/29/2016 10:40							
11/29/2016 10:50							
11/29/2016 11:00							
11/29/2016 11:10							
11/29/2016 11:20							
11/29/2016 11:30							
11/29/2016 11:40							
11/29/2016 11:50							
11/29/2016 12:00							
11/29/2016 12:10							
11/29/2016 12:20							
11/29/2016 12:30							
11/29/2016 12:40							
11/29/2016 12:50							
11/29/2016 13:00							
11/29/2016 13:10							
11/29/2016 13:20							
11/29/2016 13:30							
11/29/2016 13:40							
11/29/2016 13:50							
11/29/2016 14:00							
11/29/2016 14:10							
11/29/2016 14:20							
11/29/2016 14:30							
11/29/2016 14:40							
11/29/2016 14:50							
11/29/2016 15:00							
11/29/2016 15:10							
11/29/2016 15:20							
11/29/2016 15:30							
11/29/2016 15:40							
11/29/2016 15:50							
11/29/2016 16:00							
11/29/2016 16:10							
11/29/2016 16:20							
11/29/2016 16:30							
11/29/2016 16:40							
11/29/2016 16:50							
11/29/2016 17:00							
11/29/2016 17:10							
11/29/2016 17:20							
11/29/2016 17:30							
11/29/2016 17:40							
11/29/2016 17:50							
11/29/2016 18:00							
11/29/2016 18:10							
11/29/2016 18:20							
11/29/2016 18:30							
11/29/2016 18:40							
11/29/2016 18:50							
11/29/2016 19:00							
11/29/2016 19:10							
11/29/2016 19:20							
11/29/2016 19:30							
11/29/2016 19:40							
11/29/2016 19:50							
11/29/2016 20:00							
11/29/2016 20:10							
11/29/2016 20:20							
11/29/2016 20:30							
11/29/2016 20:40							
11/29/2016 20:50							
11/29/2016 21:00							
11/29/2016 21:10							
11/29/2016 21:20							
11/29/2016 21:30							
11/29/2016 21:40							
11/29/2016 21:50							
11/29/2016 22:00							
11/29/2016 22:10							
11/29/2016 22:20							
11/29/2016 22:30							
11/29/2016 22:40							
11/29/2016 22:50							
11/29/2016 23:00							
11/29/2016 23:10							
11/29/2016 23:20							
11/29/2016 23:30							
11/29/2016 23:40							
11/29/2016 23:50							
11/29/2016 24:00							

Sample Locations are arranged for wind direction traveling from West to East -----&gt;

## Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an estimate
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the Laboratory Data export Files.

Landfill &amp; Old Water Treatment Plant Locations

Residential Ambient Air Locations



TABLE 25

24-Hour Ambient Samples Collected November 30 – December 1, 2016

Location	South Landfill	North Landfill	Old Water Treatment Plant	West	South Ambient Air		North	East
Station ID	GM19	GM18	GM02	GM11	GM01		GM12	GM13
Sample ID	GM19AA31116	GM18AA1116	GM02AA21116	GM11AA21116	GM01AA21116	GM01AA21116D	GM12AA21116	GM13AA21116
Matrix	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air
Sample Date			11/30/2016 7:28	11/30/2016 7:51	11/30/2016 7:40	11/30/2016 7:40	11/30/2016 8:05	11/30/2016 8:15
Analysis								
Units								
m- and w-P-Xylene	ug/m3		0.55 LO	0.59 LO	0.60 LO	0.49 LO	0.49 LO	4.1 U
1,1,2-Trichloroethane	ug/m3		2.7 U	2.8 U	2.6 U	2.7 U	2.8 U	2.5 U
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3		1.8 U	1.9 U	1.8 U	1.8 U	1.9 U	1.7 U
1,2,4-Trimethylbenzene	ug/m3		0.43 LO	0.43 LO	0.39 LO	0.35 LO	0.38 LO	0.24 LO
1,2-Dichloroethane	ug/m3		1.9 U	2.0 U	1.9 U	1.9 U	2.0 U	1.8 U
Benzene	ug/m3		0.44 LO	0.52 LO	0.52 LO	0.47 LO	0.50 LO	0.44 LO
Chloroform	ug/m3		2.4 U	2.5 U	2.3 U	2.3 U	2.4 U	2.2 U
Ethylbenzene	ug/m3		2.1 U	2.2 U	2.1 U	2.1 U	2.2 U	2.0 U
Methylchloride	ug/m3		1.6 U	1.7 U	1.6 U	1.6 U	1.7 U	1.5 U
1,1,2,2-Tetrachloroethene (Tetrachloroethylene)	ug/m3		3.3 U	3.5 U	3.2 U	3.3 U	3.4 U	3.1 U
Toluene	ug/m3		0.72 LO	0.85 LO	0.85 LO	0.74 LO	0.77 LO	0.51 LO
Trichloroethene (Trichloroethylene)	ug/m3		0.35 LO	2.8 U	2.5 U	2.6 U	2.7 U	2.5 U
Vinylchloride	ug/m3		1.2 U	1.3 U	1.2 U	1.2 U	1.3 U	1.2 U
cis-1,2-Dichloroethene	ug/m3		1.9 U	2.0 U	1.9 U	1.9 U	2.0 U	1.8 U
o-Xylene	ug/m3		0.27 LO	0.30 LO	0.27 LO	0.24 LO	0.25 LO	2.0 U
trans-1,2-Dichloroethene	ug/m3		2.0 U	2.1 U	2.0 U	2.0 U	2.1 U	1.9 U
Sample VOID due to Bad Weather			Sample VOID due to Bad Weather					

Sample Locations are arranged for Wind Direction traveling from West to East -----&gt;

## Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an estimate
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the Laboratory Data export files.

Landfill &amp; Old Water Treatment Plant Locations

Residential Ambient Air Locations



## TABLE 26

**24-Hour Ambient Samples Collected December 1 - 2, 2016**

Location	South Landfill	North Landfill	Old Water	West	South Ambient Air Location		North	East
	Ambient Air Location	Ambient Air Location	Ambient Air Location	Ambient Air Location	Ambient Air Location	Ambient Air Location	Ambient Air Location	Ambient Air Location
Station ID	GM19	GM18	GM02	GM11	GM01		GM12	GM13
Sample ID	GM19AA31116	GM18AA31116	GM02AA31116	GM11AA31116	GM01AA31116	GM01AA31116D	GM12AA31116	GM13AA31116
Matrix	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air
Sample Date	12/1/2016 7:13	12/1/2016 7:25	12/1/2016 7:35	12/1/2016 7:54	12/1/2016 7:45	12/1/2016 7:45	12/1/2016 8:00	12/1/2016 8:10
Analyte	Units							
1m- and/orp D-Xylene	ug/m3	0.5910	0.9610	0.5710	0.6710	0.4310	4.5U	4.0U
1,1,2-Trichloroethane	ug/m3	2.7U	2.7U	2.8U	2.8U	2.7U	2.8U	2.5U
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/m3	1.8U	1.8U	1.8U	1.9U	1.8U	1.9U	1.7U
1,2,4-Trimechbenzene	ug/m3	1.810	1.510	0.8910	0.7110	0.5710	0.5610	0.5710
1,2-Dichloroethane	ug/m3	1.9U	1.9U	1.9U	2.0U	1.9U	2.0U	2.0U
Benzene	ug/m3	0.4910	0.6410	0.4810	0.5510	0.4710	0.4610	0.4910
Chloroform	ug/m3	2.3U	2.3U	2.4U	2.5U	2.3U	2.4U	2.4U
Fibry Benzene	ug/m3	2.1U	0.2710	2.1U	0.2410	2.1U	2.2U	2.2U
Methylene Chloride	ug/m3	1.6U	1.6U	1.6U	1.7U	1.6U	1.7U	1.5U
Tetrachloroethene (Tetrachloroethylene)	ug/m3	3.3U	3.3U	3.3U	3.5U	3.3U	3.4U	3.1U
Toluene	ug/m3	0.7410	1.110	0.8210	1.010	0.7210	0.7210	0.5410
Trichloroethene (Trichloroethylene)	ug/m3	2.6U	2.510	0.3010	0.2910	2.6U	2.7U	2.7U
Vinylchloride	ug/m3	1.2U	1.2U	1.2U	1.3U	1.2U	1.3U	1.2U
cis-1,2-Dichloroethene	ug/m3	1.9U	0.4210	1.9U	2.0U	1.9U	2.0U	1.8U
o-Xylene	ug/m3	0.5310	0.5510	0.3310	0.3710	0.2410	0.2710	0.2610
trans-1,2-Dichloroethene	ug/m3	2.0U	2.0U	2.0U	2.1U	2.0U	2.1U	1.9U

**Sample Locations are arranged for Wind Direction traveling from West to East -----→**

## Detects are Highlighted

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
Flag	Definition
U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; the reported value is an estimate
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the Laboratory Data export Files.

SESD Project ID Number: 17-0050

Grenada Manufacturing Site





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## **Appendix C**

### **Wind Speed and Direction Data**



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**Table 26**

**Wind Speed and Direction Data  
07:00 November 29 to 08:00 November 30, 2016**

RM YOUNG CO.  
TRAVERSE CITY, MI  
26700 SERIES TRANSLATOR

DATE Month	DATE Day	TIME Hour	TIME Min.	Wind Speed Average MPH	Wind Speed Maximum MPH	Wind Direction Average Degrees	Wind Direction Standard Deviation Degrees
11	29	7	0	2.1	6	171	23
11	29	8	0	1.6	6	182	27
11	29	9	0	2.2	6	166	28
11	29	10	0	4	12	159	21
11	29	11	0	4.8	13	162	24
11	29	12	0	4.9	13	174	29
11	29	13	0	4.7	12	178	30
11	29	14	0	3.5	9	173	26
11	29	15	0	3.7	11	161	24
11	29	16	0	4	12	157	21
11	29	17	0	5.8	33	152	102
11	29	18	0	3.2	21	356	92
11	29	19	0	1.4	5	84	96
11	29	20	0	0.9	5	175	89
11	29	21	0	1	3	94	91
11	29	22	0	0.6	4	42	97
11	29	23	0	1.3	6	335	79
11	30	0	0	0.9	4	280	83
11	30	1	0	2.3	12	291	51
11	30	2	0	1.3	5	174	86
11	30	3	0	2.9	13	155	35
11	30	4	0	2.2	9	168	55
11	30	5	0	1.5	4	262	80
11	30	6	0	0.6	3	245	65
11	30	7	0	1.4	5	249	32
11	30	8	0	2.4	7	285	27

**Table 27**

**Wind Speed and Direction Data  
07:00 November 30 to 08:00 December 1, 2016**

RM YOUNG CO.  
TRAVERSE CITY, MI  
26700 SERIES TRANSLATOR

DATE Month	DATE Day	TIME Hour	TIME Min.	Wind Speed Average MPH	Wind Speed Maximum MPH	Wind Direction Average Degrees	Wind Direction Standard Deviation Degrees
11	30	7	0	1.4	5	249	32
11	30	8	0	2.4	7	285	27
11	30	9	0	3.6	11	287	26
11	30	10	0	4.4	12	287	30
11	30	11	0	4.7	12	286	29
11	30	12	0	3.4	12	266	34
11	30	13	0	3.7	11	257	26
11	30	14	0	5.8	15	262	29
11	30	15	0	7.3	20	264	24
11	30	16	0	6	18	268	24
11	30	17	0	4.6	18	273	20
11	30	18	0	1.7	5	265	23
11	30	19	0	0.6	2	240	23
11	30	20	0	1.1	2	236	16
11	30	21	0	0.9	3	265	51
11	30	22	0	0.8	3	246	27
11	30	23	0	0.8	2	229	41
12	1	0	0	0.8	2	221	43
12	1	1	0	0.6	2	242	48
12	1	2	0	1	2	239	19
12	1	3	0	0.7	2	235	15
12	1	4	0	0.9	2	241	9
12	1	5	0	1	3	248	21
12	1	6	0	0.8	2	253	13
12	1	7	0	0.7	3	228	30
12	1	8	0	1.4	4	182	23

**Table 28**

**Wind Speed and Direction Data  
07:00 December 1 to 19:00 December 1, 2016**

RM YOUNG CO.  
TRAVERSE CITY, MI  
26700 SERIES TRANSLATOR

DATE Month	DATE Day	TIME Hour	TIME Min.	Wind Speed Average MPH	Wind Speed Maximum MPH	Wind Direction Average Degrees	Wind Direction Standard Deviation Degrees
12	1	7	0	0.7	3	228	30
12	1	8	0	1.4	4	182	23
12	1	9	0	0.7	3	191	30
12	1	10	0	2.4	8	267	30
12	1	11	0	3	8	263	37
12	1	12	0	4.3	11	286	41
12	1	13	0	4.5	12	280	43
12	1	14	0	4.3	13	280	35
12	1	15	0	3.7	10	267	40
12	1	16	0	3.4	9	267	18
12	1	17	0	1.2	6	265	22
12	1	18	0	0.1	2	235	16
12	1	19	0	0	0	243	17



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# **Appendix D**

## **Photographs**

Image 1 thru Image 42 – Sample Stations  
Photograph Log (2 pages)  
Photographs (2 pages)

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**Image 1** – Sample station GM19 – South Landfill Ambient Air Monitoring Location facing north  
DSCN4530 – Taken 11/29/2016 07:17



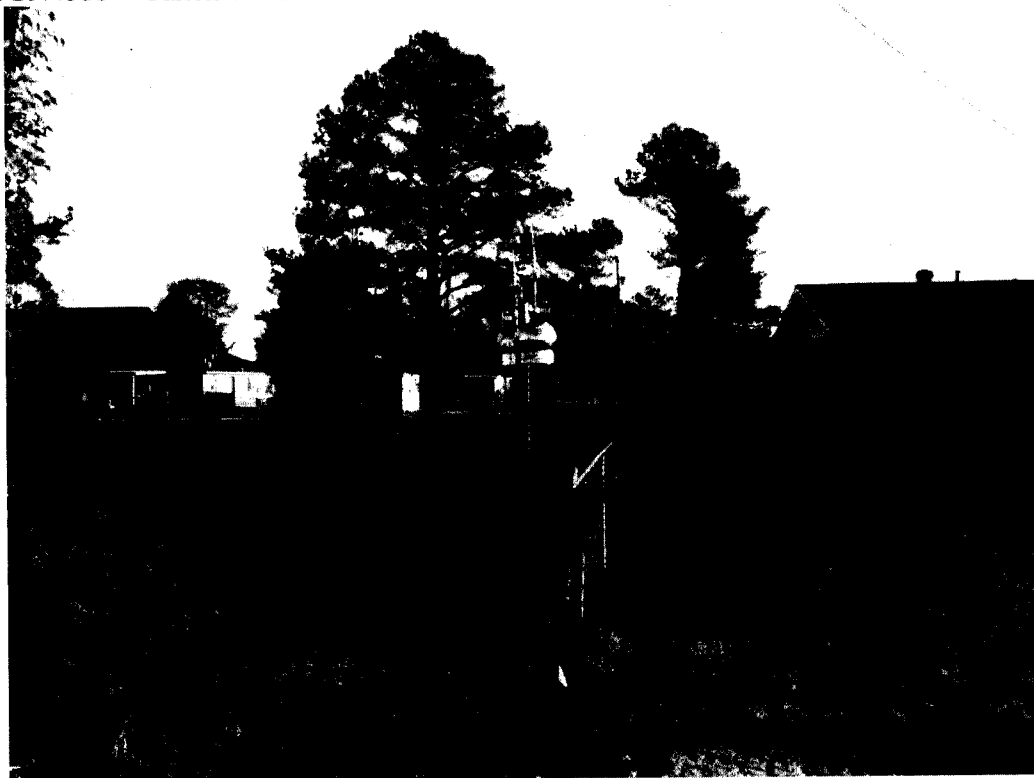
**Image 2** – Sample station GM18 – North Landfill Ambient Air Monitoring Location facing east  
DSCN4531 – Taken 5/3/2016 07:26



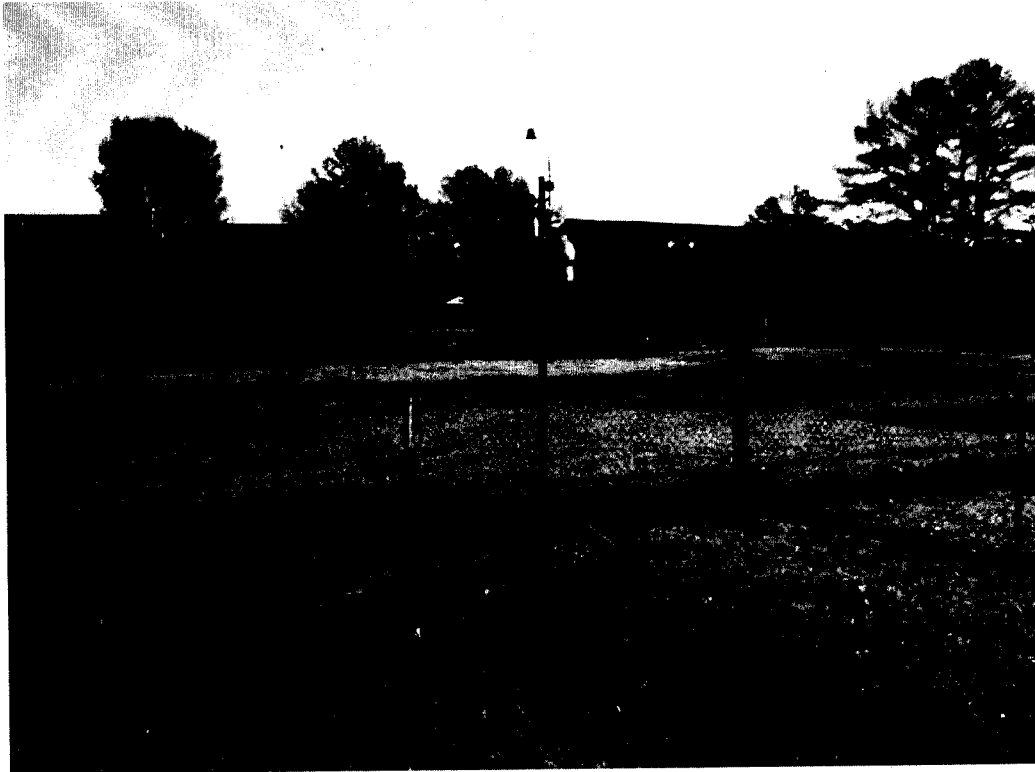
**Image 3** – Sample station GM02 – Old water Treatment Plant Air Monitoring Location facing east  
DSCN4533 – Taken 11/29/2016 07:34



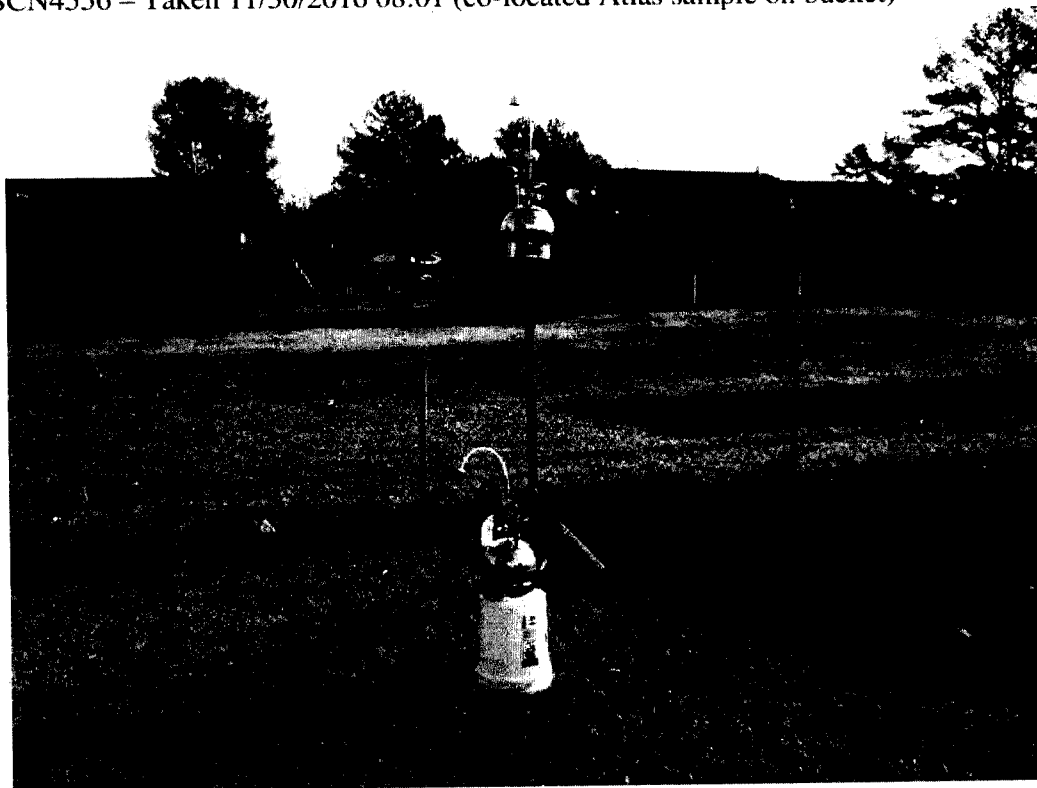
**Image 4** – Sample station GM01 - South Ambient Air Monitoring Location (duplicate site) facing north  
DSCN4535 – Taken 11/29/2016 07:48



**Image 5** – Sample station GM11 - West Ambient Air Monitoring Station facing east  
DSCN4536 – Taken 11/29/2016 07:56



**Image 6** – RELOCATED Sample station GM11 - West Ambient Air Monitoring Station facing east  
DSCN4556 – Taken 11/30/2016 08:01 (co-located Atlas sample on bucket)



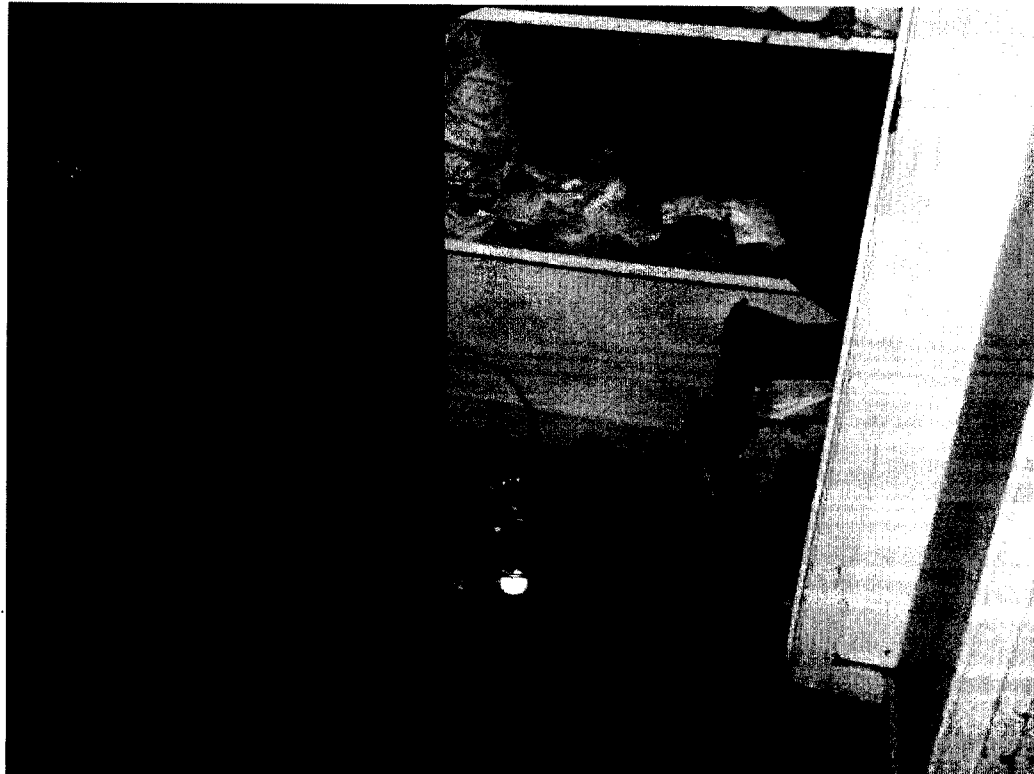
**Image 7** – Sample station GM12 - North Ambient Air Monitoring Location facing south  
DSCN4537 – Taken 11/29/2016 08:03



**Image 8** – Sample station GM13 - East Ambient Air Monitoring Station facing north  
DSCN4538 – Taken 11/29/2016 08:12



**Image 9** – Sample station GM111 – 118 Rockwell Circle Sub-Slab Soil Gas Sampling Location  
DSCN4539 – Taken 11/29/2016 09:58



**Image 10** – Sample station GM111 – 118 Rockwell Circle Indoor Air Sampling Location  
DSCN4540 – Taken 11/29/2016 09:59





**Image 11** – Sample station GM114 – 124 Rockwell Circle Sub-Slab Soil Gas Sampling Location  
DSCN4541 – Taken 11/29/2016 10:25



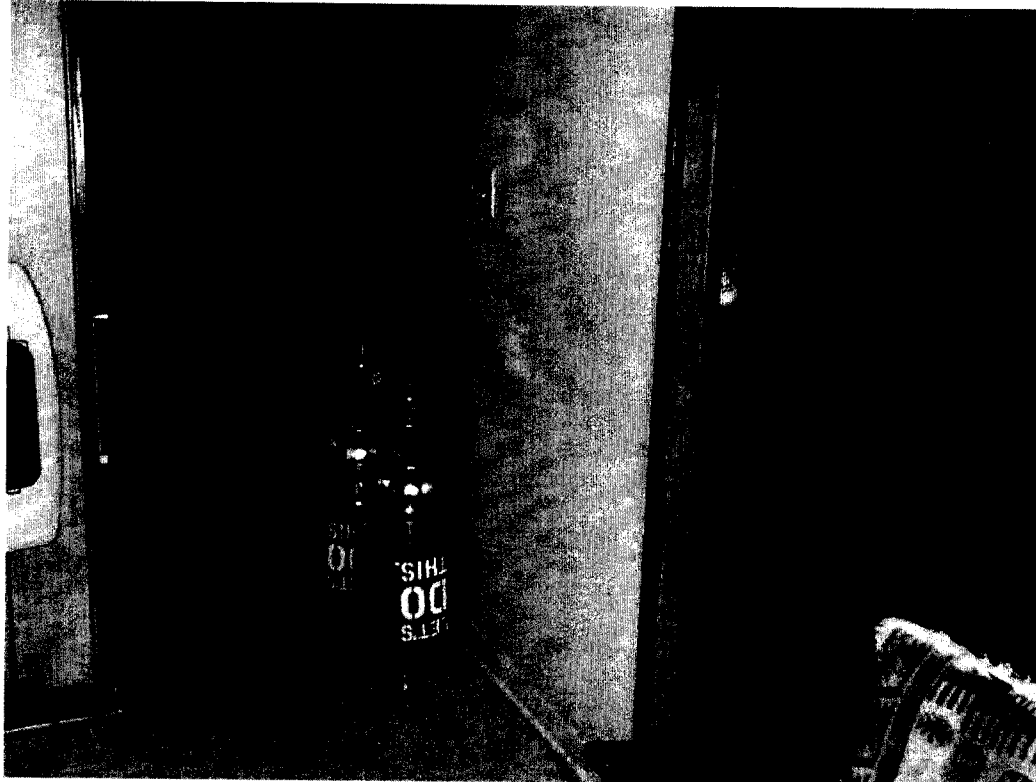
**Image 12** – Sample station GM114 – 124 Rockwell Circle Indoor Air Sampling Location  
DSCN4543 – Taken 11/29/2016 10:35 co-located with Atlas sample



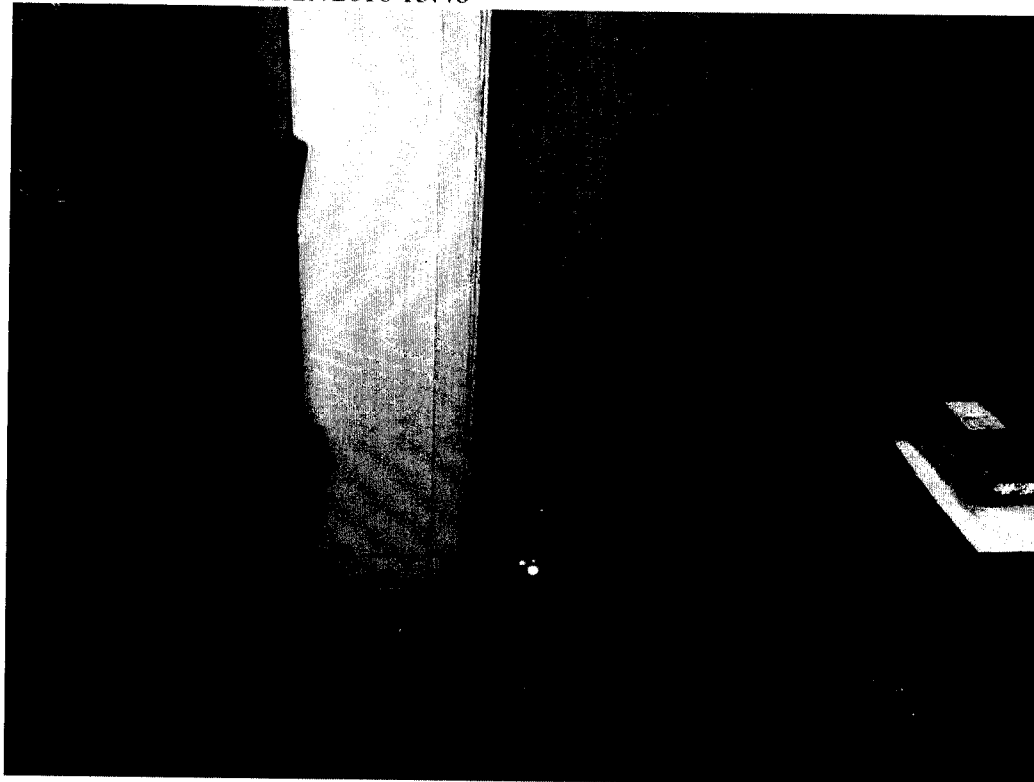
**Image 13** – Sample station GM107 – 110 Lyon Drive Sub-Slab Soil (split) Sampling Location  
DSCN4544 – Taken 11/29/2016 11:26



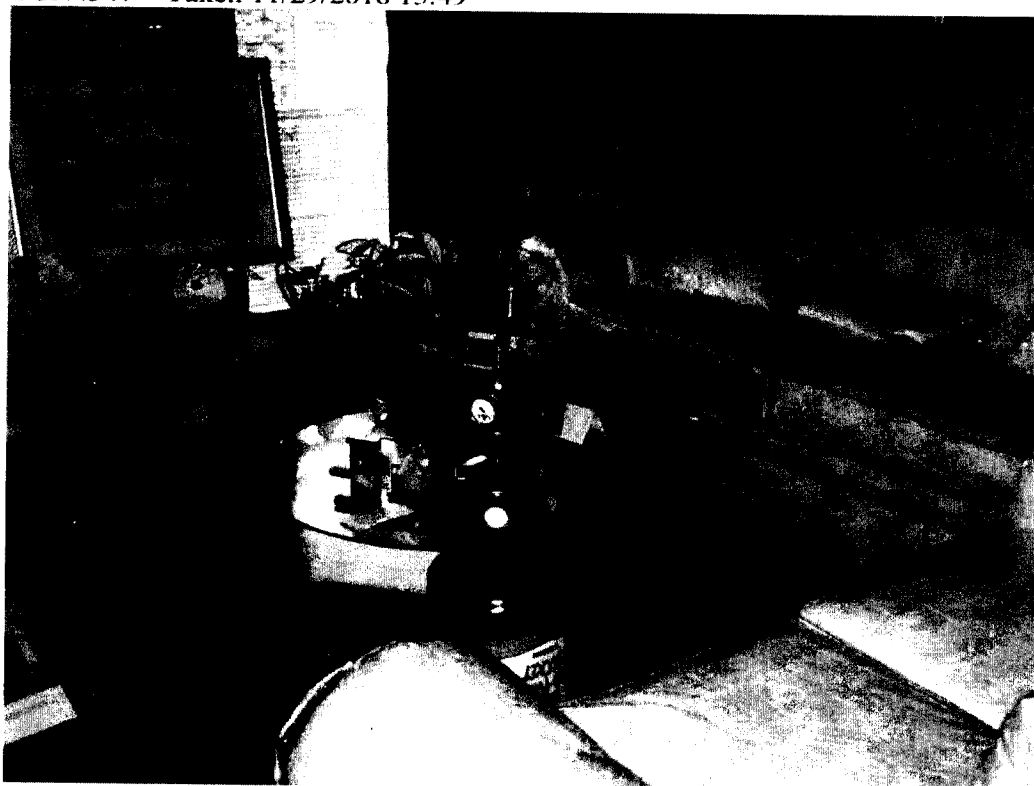
**Image 14** – Sample station GM107 – 110 Lyon Drive Indoor Air Sampling Location  
DSCN4545 – Taken 11/29/2016 11:39



**Image 15** – Sample station GM110 – 116 Rockwell Circle Sub-Slab Soil Gas Sampling Location  
DSCN4546 – Taken 11/29/2016 13:48



**Image 16** – Sample station GM110 – 116 Rockwell Circle Indoor Air Duplicate Sampling Location  
DSCN4547 – Taken 11/29/2016 13:49



**Image 17** – Sample station GM112 – 120 Rockwell Circle Sub- Slab Soil Gas Sampling Location  
DSCN4548 – Taken 11/29/2016 14:18



**Image 18** – Sample station GM112 – 120 Rockwell Circle Indoor Air Sampling Location  
DSCN4549 – Taken 11/29/2016 14:20



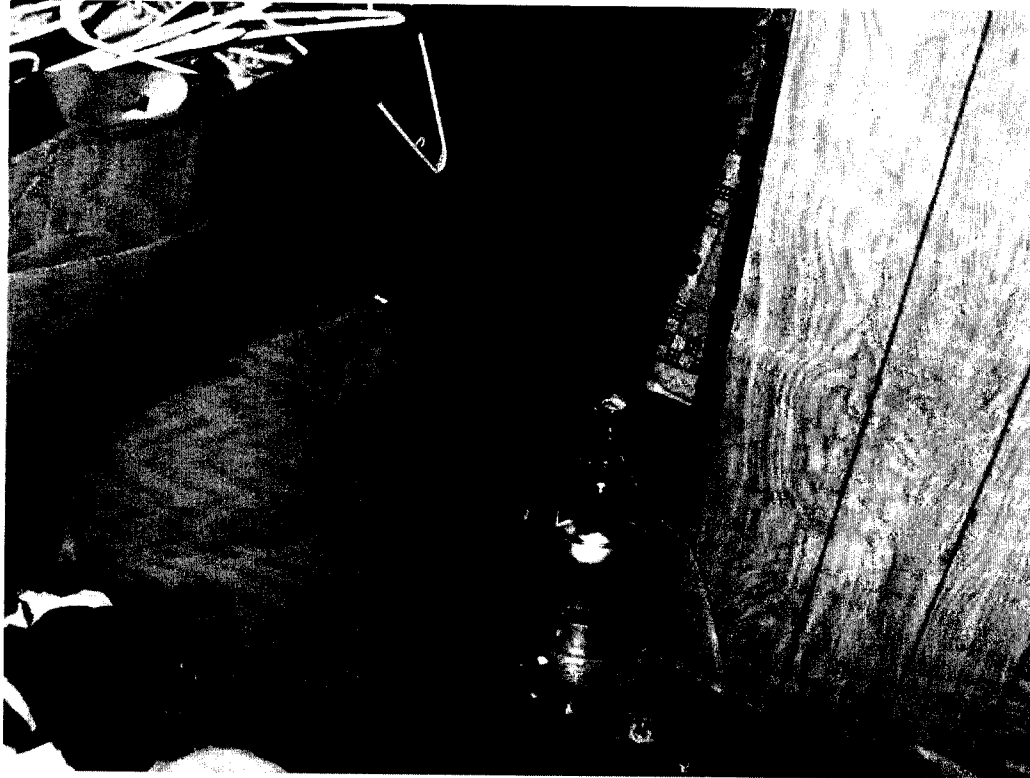
**Image 19** – Sample station GM113 – 122 Rockwell Circle Sub-Slab Soil Gas Sampling Location  
DSCN4550 – Taken 11/29/2016 15:19



**Image 20** – Sample station GM113 – 122 Rockwell Circle Indoor Air Sampling Location  
DSCN4551 – Taken 11/29/2016 15:20 (co-located with Atlas Sample on table)



**Image 21** – Sample station GM121 – 151 Tallahoma Drive Sub-Slab Soil Gas Sampling Location  
DSCN4552 – Taken 11/29/2016 16:11



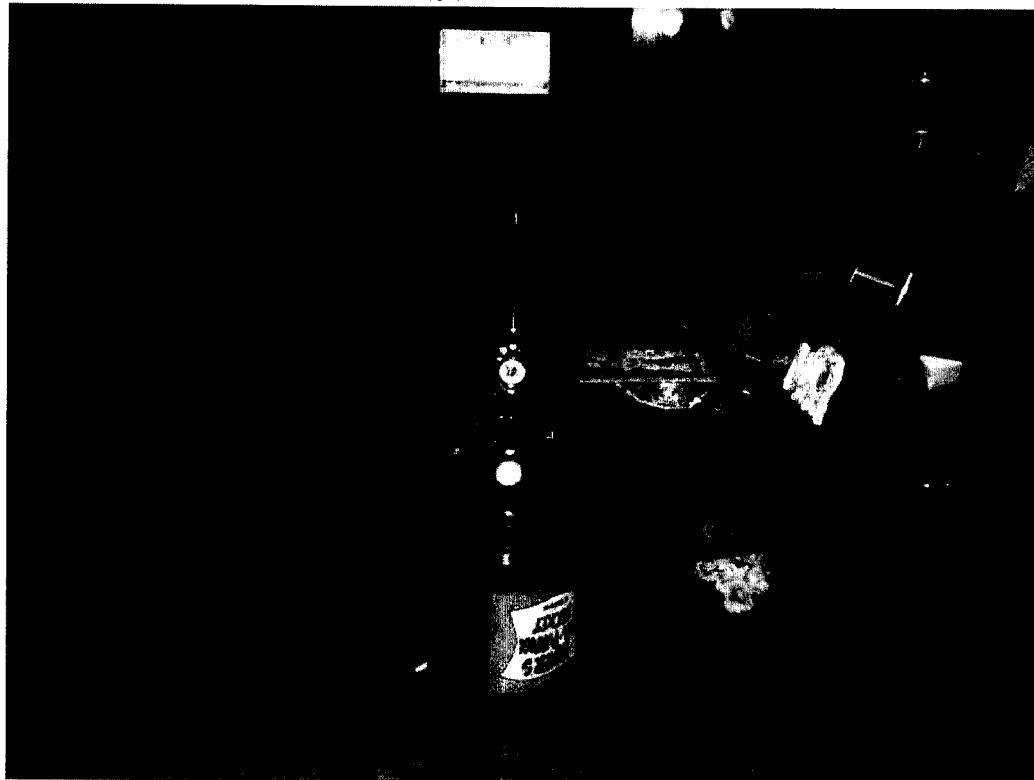
**Image 22** – Sample station GM121 – 151 Tallahoma Drive Indoor Air Sampling Location  
DSCN4553 – Taken 11/29/2016 16:15



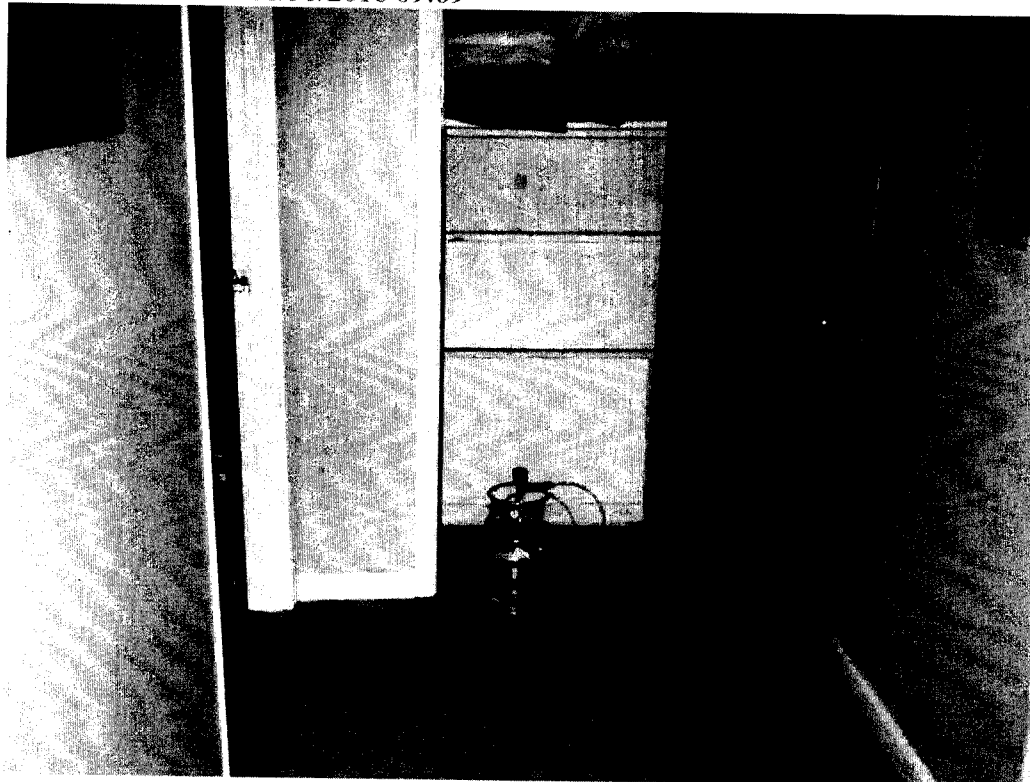
**Image 23** – Sample station GM109 – 114 Lyon Drive Sub-Slab Soil Gas Sampling Location  
DSCN4554 – Taken 11/29/2016 16:58



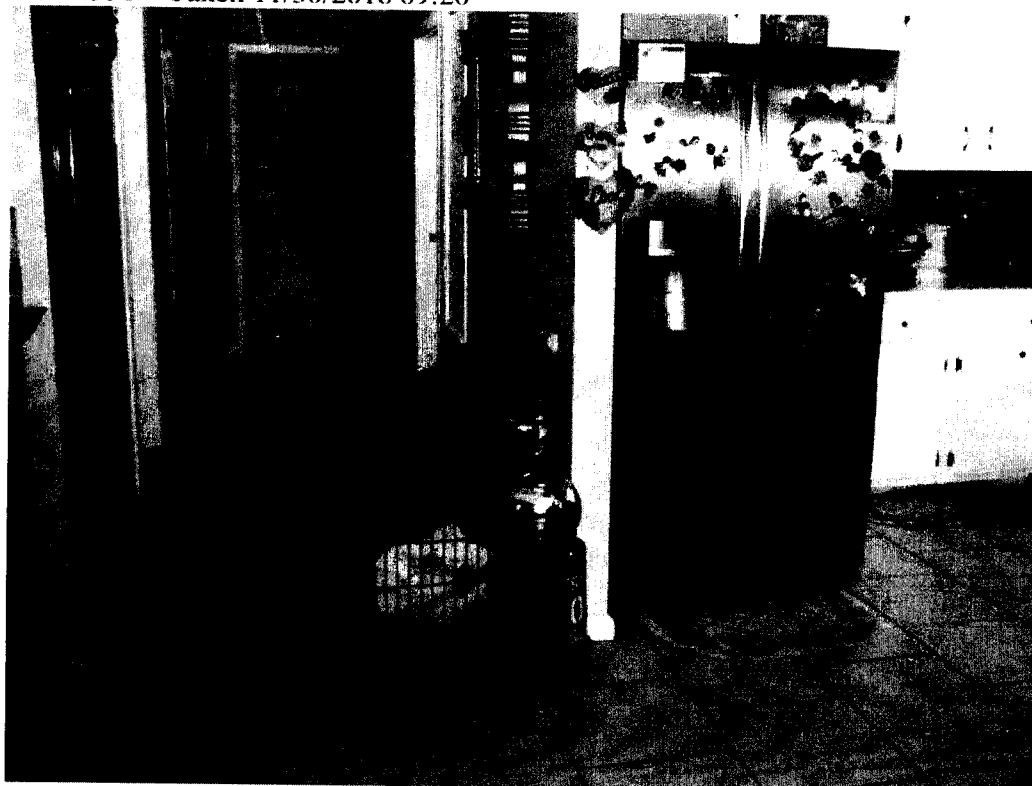
**Image 24** – Sample station GM109 – 114 Lyon Drive Indoor Air Sampling Location  
DSCN4555 – Taken 11/29/2016 16:58



**Image 25** – Sample station GM119 – 155 Tallahoma Circle Sub-Slab Soil Gas Sampling Location  
DSCN4557 – Taken 11/30/2016 09:09



**Image 26** – Sample station GM119 – 155 Tallahoma Circle Indoor Air Sampling Location  
DSCN4558 – Taken 11/30/2016 09:20

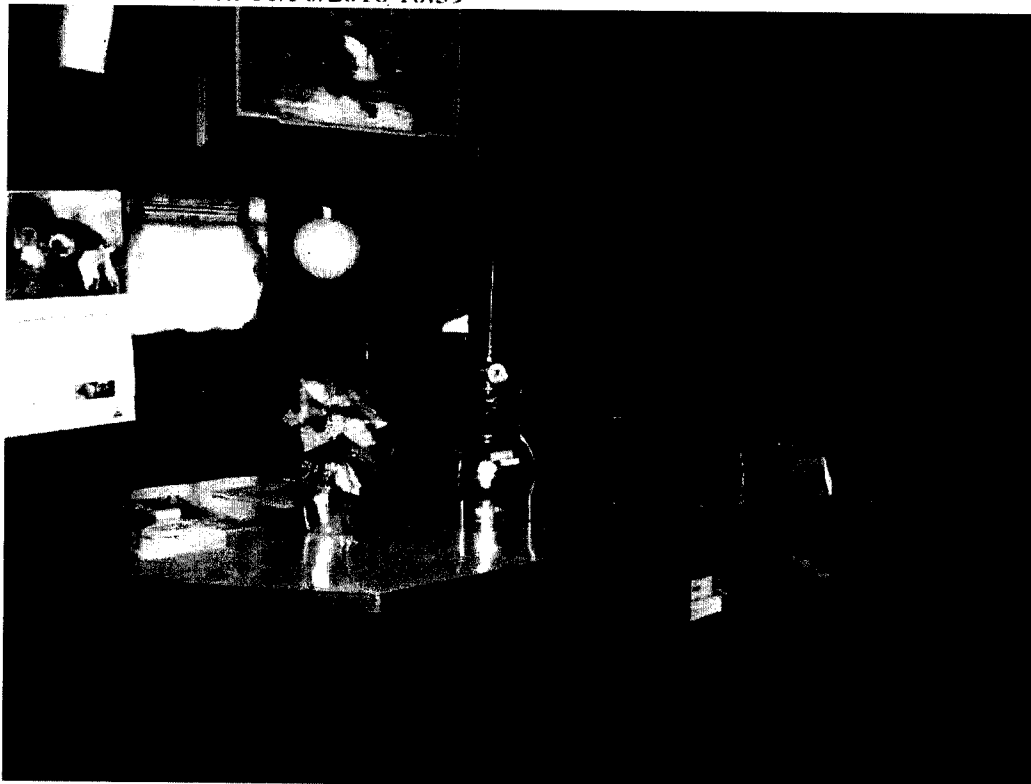




**Image 27**– Sample station GM116 – 208 Lyon Drive Sub-Slab Sampling Location  
DSCN4560 – Taken 11/30/2016 11:00



**Image 28** – Sample station GM116 – 208 Lyon Drive Indoor Air Sampling Location  
DSCN4559 – Taken 11/30/2016 10:59



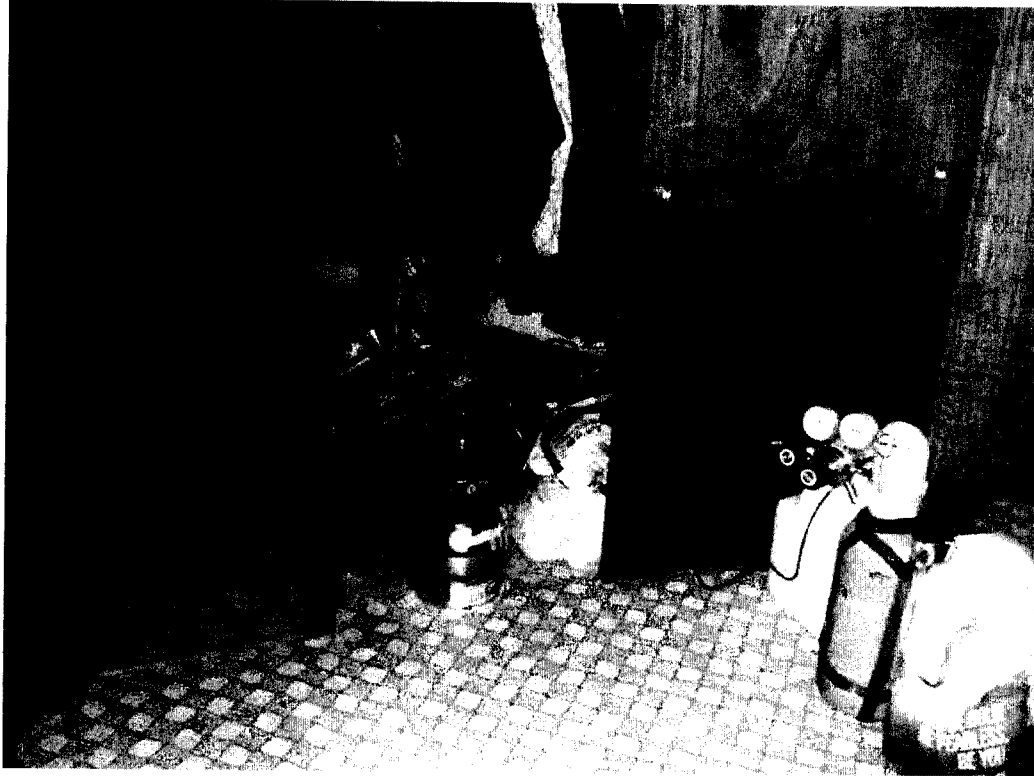
**Image 29** – Sample station GM108 – 112 Lyon Drive Sub-Slab Soil Gas Sampling Location  
DSCN4561 – Taken 11/30/2016 11:28



**Image 30** – Sample station GM108 112 Lyon Drive Indoor Air Sampling Location  
DSCN4562 – Taken 11/30/2016 11:29



**Image 31** – Sample station GM122 - 105 Lyon Drive Sub-Slab Soil Gas Sampling Location  
DSCN4563 – Taken 11/30/2016 11:46



**Image 32** – Sample station GM122 - 105 Lyon Drive Indoor Air Sampling Location  
DSCN4565 – Taken 11/30/2016 11:51 (co-located with Atlas sample)



**Image 33** – Sample station GM118 – 212 Lyon Drive Sub Slab Soil Gas Sample Location  
DSCN4566 – Taken 11/30/2016 13:57



**Image 34** – Sample station GM118 - 212 Lyon Drive Indoor Air Sampling Location  
DSCN4567 – Taken 11/30/2016 13:59



**Image 35** – Sample station GM117 – 210 Lyon Drive Sub Slab Soil Gas (split) Sample Location  
DSCN4568 – Taken 11/30/2016 14:44



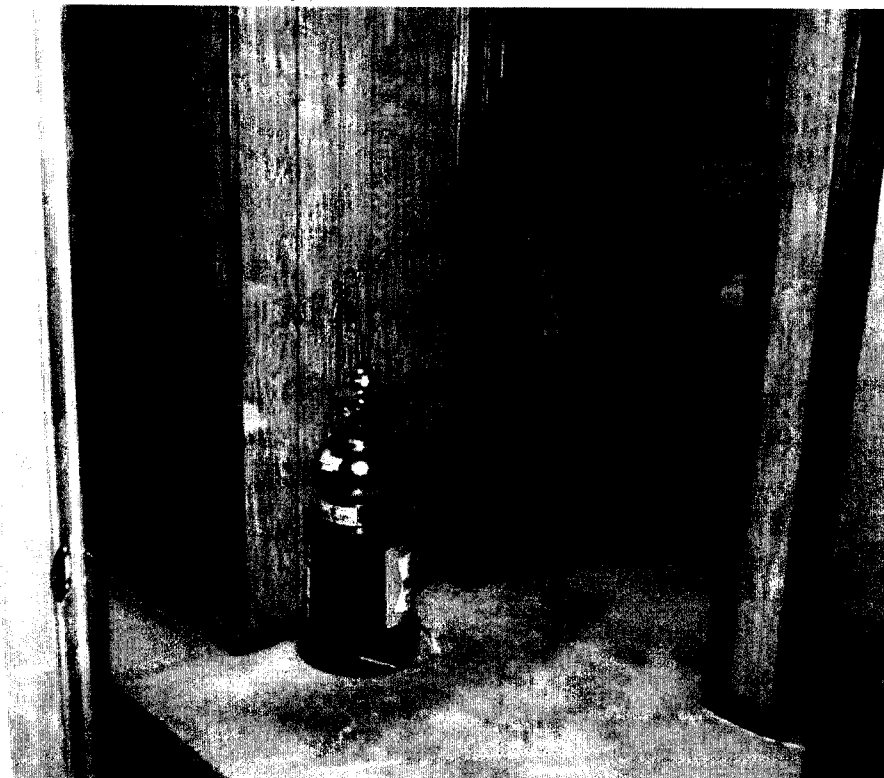
**Image 36** – Sample station GM117 – 210 Lyon Drive Indoor Air (co-located) Sampling Location  
DSCN4569 – Taken 11/30/2016 14:45



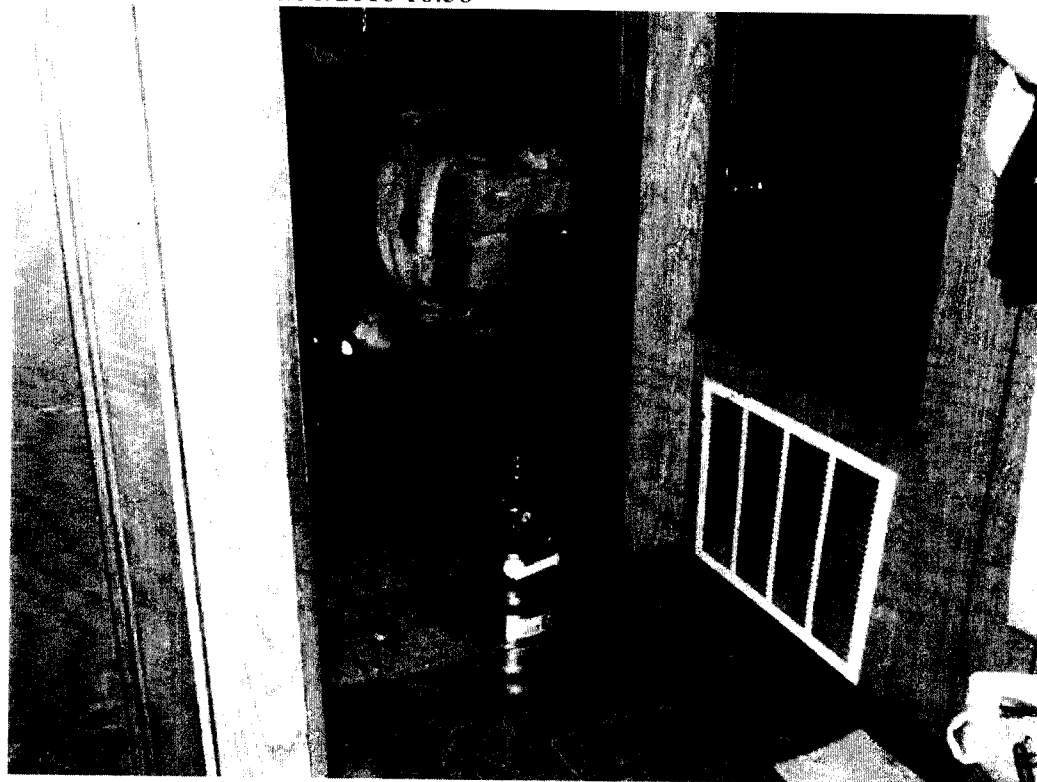
**Image 37** – Sample station GM115 – 126 Lyon Drive Sub Slab Soil Gas Sample Location  
DSCN4570 – Taken 11/30/2016 15:58



**Image 38** – Sample station GM115 – 126 Lyon Drive Indoor Air Sampling Location  
DSCN4571 – Taken 11/30/2016 15:58



**Image 39** – Sample station GM120 – 153 Tallahoma Circle Sub Slab Soil Gas Sample Location  
DSCN4572 – Taken 11/30/2016 16:38



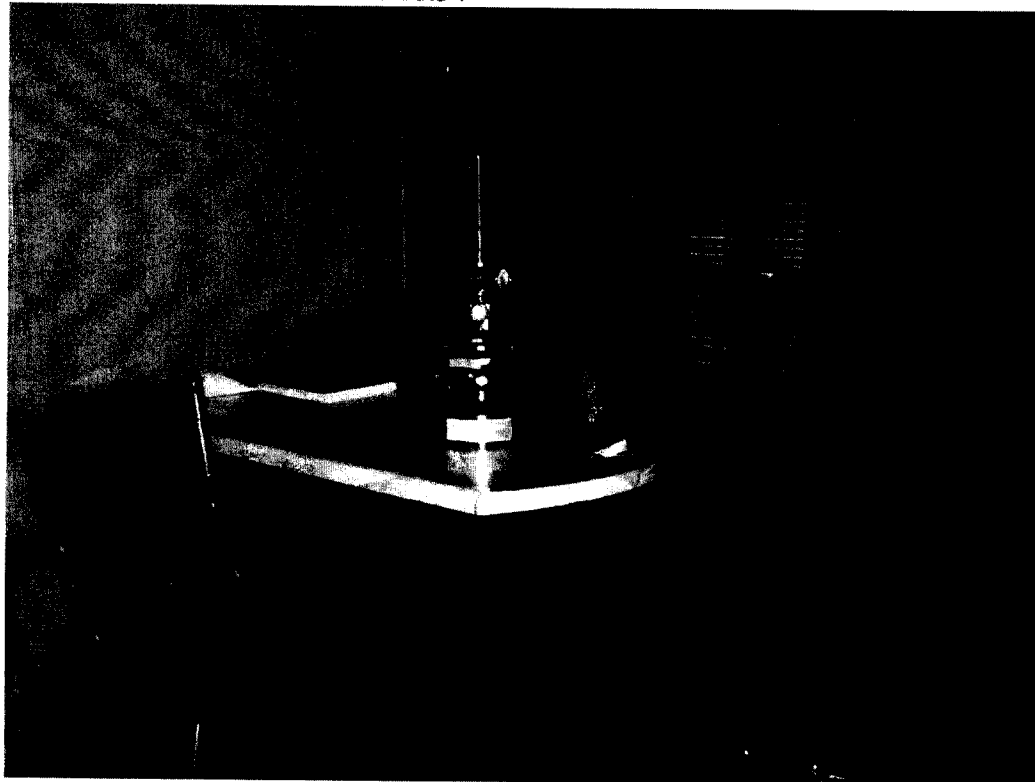
**Image 40** – Sample station GM120 – 153 Tallahoma Circle Indoor Air Sampling Location  
DSCN4573 – Taken 11/30/2016 16:40



**Image 41** – Sample station GM123 – 103 Lyon Drive Sub Slab Soil Gas Sample Location  
DSCN4574 – Taken 12/01/2016 08:47



**Image 42** – Sample station GM123 – 103 Lyon Drive Indoor Air Sampling Location  
DSCN4575 – Taken 12/01/2016 08:54





## Photograph Log

Digital Photo Identification Number	Date	Local Time	Sample Station	Photo Subject	Photographer
DSCN4530.JPG	11/29/2016	07:17	GM19	South Landfill AA sampling	Tim Slagle
DSCN4531.JPG	11/29/2016	07:26	GM18	North Landfill AA sampling	Tim Slagle
DSCN4532.JPG	11/29/2016	07:26	GM18	North Landfill AA sampling	Tim Slagle
DSCN4533.JPG	11/29/2016	07:34	GM02	Old Water Treatment Plant AA sampling	Tim Slagle
DSCN4534.JPG	11/29/2016	07:35	GM02	Old Water Treatment Plant AA sampling	Tim Slagle
DSCN4535.JPG	11/29/2016	07:48	GM01	South AA sampling	Tim Slagle
DSCN4536.JPG	11/29/2016	07:56	GM11	West AA sampling	Tim Slagle
DSCN4537.JPG	11/29/2016	08:03	GM12	North AA sampling	Tim Slagle
DSCN4538.JPG	11/29/2016	08:12	GM13	East AA sampling	Tim Slagle
DSCN4539.JPG	11/29/2016	09:58	GM111	118 Rockwell Circle SS sampling	Tim Slagle
DSCN4540.JPG	11/29/2016	09:59	GM111	118 Rockwell Circle IA sampling	Tim Slagle
DSCN4541.JPG	11/29/2016	10:25	GM114	124 Rockwell Circle SS sampling	Tim Slagle
DSCN4542.JPG	11/29/2016	10:28	GM114	124 Rockwell Circle IA sampling	Tim Slagle
DSCN4543.JPG	11/29/2016	10:35	GM114	124 Rockwell Circle IA sampling	Tim Slagle
DSCN4544.JPG	11/29/2016	11:26	GM107	110 Lyon Drive SS sampling	Tim Slagle
DSCN4545.JPG	11/29/2016	11:39	GM107	110 Lyon Drive IA sampling	Tim Slagle
DSCN4546.JPG	11/29/2016	13:48	GM110	116 Rockwell Circle SS sampling	Tim Slagle
DSCN4547.JPG	11/29/2016	13:49	GM110	116 Rockwell Circle IA sampling	Tim Slagle
DSCN4548.JPG	11/29/2016	14:18	GM112	120 Rockwell Circle SS sampling	Tim Slagle
DSCN4549.JPG	11/29/2016	14:20	GM112	120 Rockwell Circle IA sampling	Tim Slagle
DSCN4550.JPG	11/29/2016	15:19	GM113	122 Rockwell Circle SS sampling	Tim Slagle
DSCN4551.JPG	11/29/2016	15:20	GM113	122 Rockwell Circle IA sampling	Tim Slagle
DSCN4552.JPG	11/29/2016	16:11	GM121	151 Tallahoma Drive SS sampling	Tim Slagle
DSCN4553.JPG	11/29/2016	16:15	GM121	151 Tallahoma Drive IA sampling	Tim Slagle
DSCN4554.JPG	11/29/2016	16:58	GM109	114 Lyon Drive SS sampling	Tim Slagle
DSCN4555.JPG	11/29/2016	16:58	GM109	114 Lyon Drive IA sampling	Tim Slagle
DSCN4556.JPG	11/30/2016	08:01	GM11	Relocated West-AA sampling	Tim Slagle
DSCN4557.JPG	11/30/2016	09:09	GM119	155 Tallahoma Circle SS sampling	Tim Slagle
DSCN4558.JPG	11/30/2016	09:20	GM119	155 Tallahoma Circle IA sampling	Tim Slagle
DSCN4559.JPG	11/30/2016	10:59	GM116	208 Lyon Drive IA sampling	Tim Slagle
DSCN4560.JPG	11/30/2016	11:00	GM116	208 Lyon Drive SS sampling	Tim Slagle
DSCN4561.JPG	11/30/2016	11:28	GM108	112 Lyon Drive SS sampling	Tim Slagle
DSCN4562.JPG	11/30/2016	11:29	GM108	112 Lyon Drive IA sampling	Tim Slagle
DSCN4563.JPG	11/30/2016	11:46	GM122	105 Lyon Drive SS sampling	Tim Slagle
DSCN4564.JPG	11/30/2016	11:49	GM122	105 Lyon Drive proposed IA location	Tim Slagle

IA = Indoor Air

AA = Ambient Air (outdoor air)

SS = Sub-Slab Soil Gas (the sample is collected under the floor slab)



## Photograph Log continued

Digital Photo Identification Number	Date	Local Time	Sample Station	Photo Subject	Photographer
DSCN4565.JPG	11/30/2016	11:51	GM122	105 Lyon Drive IA sampling	Tim Slagle
DSCN4566.JPG	11/30/2016	13:57	GM118	212 Lyon Drive SS sampling	Tim Slagle
DSCN4567.JPG	11/30/2016	13:59	GM118	212 Lyon Drive IA sampling	Tim Slagle
DSCN4568.JPG	11/30/2016	14:44	GM117	210 Lyon Drive SS sampling	Tim Slagle
DSCN4569.JPG	11/30/2016	14:45	GM117	210 Lyon Drive IA sampling	Tim Slagle
DSCN4570.JPG	11/30/2016	15:58	GM115	126 Lyon Drive SS sampling	Tim Slagle
DSCN4571.JPG	11/30/2016	15:58	GM115	126 Lyon Drive IA sampling	Tim Slagle
DSCN4572.JPG	11/30/2016	16:38	GM120	153 Tallahoma Circle SS sampling	Tim Slagle
DSCN4573.JPG	11/30/2016	16:40	GM120	153 Tallahoma Circle IA sampling	Tim Slagle
DSCN4574.JPG	12/1/2016	08:47	GM123	103 Lyon Drive SS sampling	Tim Slagle
DSCN4575.JPG	12/1/2016	08:54	GM123	103 Lyon Drive IA sampling	Tim Slagle

IA = Indoor Air

AA = Ambient Air (outdoor air)

SS = Sub-Slab Soil Gas (the sample is collected under the floor slab)



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# **Appendix E**

## **Attachments**

(Each attachment is individually numbered)

FINAL Analytical Report – VOC Air (80 pages)  
Field Sampling Logbook (47 pages)  
Chain of Custody (7 pages)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

January 9, 2017

4SESD-ASB

**MEMORANDUM**

**SUBJECT:** FINAL Analytical Report  
Project: 17-0050, Grenada Manufacturing  
Resource Conservation and Recovery Act

**FROM:** Sallie Hale  
OCS Analyst

**THRU:** Jeffrey Hendel, Chief  
ASB Organic Chemistry Section

**TO:** Tim Slagle

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at [www.epa.gov/region4/sesd/asbsop](http://www.epa.gov/region4/sesd/asbsop). Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Section 5.2 of the ASB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:

Method Used:

Accreditations:

**Volatile Organics (VOA)**

Volatile organic compounds

EPA TO-15 (Air)

ISO



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**Report Narrative for Work Order: E165002**

01/09/17 SJH: Ambient air samples -61 and -64 were not analyzed because the cans showed no measurable pressure and were thus declared VOID. Samples -60 and -63, also ambient air, had initial pressures below 10 psia and water in their inlets but were analyzed anyway.

---

**Sample Disposal Policy**

Because of the laboratory's limited space for long term sample storage, our policy is to dispose of samples on a periodic schedule. Please note that within 60 days of this memo, the original samples and all sample extracts and/or sample digestates will be disposed of in accordance with applicable regulations. The 60-day sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 60-day period, please contact our Sample Control Coordinator by e-mail at [R4SampleCustody@epa.gov](mailto:R4SampleCustody@epa.gov), and provide a reason for holding samples beyond 60 days





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**SAMPLES INCLUDED IN THIS REPORT**

**Project: 17-0050, Grenada Manufacturing**

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
GMTBA1116	E165002-01	Trip Blank Air	11/29/16 07:10	12/5/16 10:30
GMTBB1116	E165002-02	Trip Blank Air	11/30/16 07:40	12/5/16 10:30
GMTBC1116	E165002-03	Trip Blank Air	12/1/16 07:12	12/5/16 10:30
GM01AA1116	E165002-04	Ambient Air	11/29/16 07:44	12/5/16 10:30
GM01AA1116D	E165002-05	Ambient Air	11/29/16 07:44	12/5/16 10:30
GM01AA21116	E165002-06	Ambient Air	11/30/16 07:40	12/5/16 10:30
GM01AA21116D	E165002-07	Ambient Air	11/30/16 07:40	12/5/16 10:30
GM01AA31116	E165002-08	Ambient Air	12/1/16 07:45	12/5/16 10:30
GM01AA31116D	E165002-09	Ambient Air	12/1/16 07:45	12/5/16 10:30
GM02AA1116	E165002-10	Ambient Air	11/29/16 07:28	12/5/16 10:30
GM02AA21116	E165002-11	Ambient Air	11/30/16 07:28	12/5/16 10:30
GM02AA31116	E165002-12	Ambient Air	12/1/16 07:35	12/5/16 10:30
GM107IA1116	E165002-13	Indoor Air	11/29/16 12:00	12/5/16 10:30
GM107IA1116D	E165002-14	Indoor Air	11/29/16 12:00	12/5/16 10:30
GM107SS1116	E165002-15	Soil Gas	11/29/16 11:18	12/5/16 10:30
GM107SS1116S	E165002-16	Soil Gas	11/29/16 11:18	12/5/16 10:30
GM108IA1116	E165002-17	Indoor Air	11/30/16 11:37	12/5/16 10:30
GM108SS1116	E165002-18	Soil Gas	11/30/16 10:38	12/5/16 10:30
GM109IA1116	E165002-19	Indoor Air	11/29/16 17:25	12/5/16 10:30
GM109SS1116	E165002-20	Soil Gas	11/29/16 16:44	12/5/16 10:30
GM11AA1116	E165002-21	Ambient Air	11/29/16 07:50	12/5/16 10:30
GM11AA21116	E165002-22	Ambient Air	11/30/16 07:51	12/5/16 10:30
GM11AA31116	E165002-23	Ambient Air	12/1/16 07:54	12/5/16 10:30
GM110IA1116	E165002-24	Indoor Air	11/29/16 14:27	12/5/16 10:30
GM110SS1116	E165002-25	Soil Gas	11/29/16 13:42	12/5/16 10:30
GM111IA1116	E165002-26	Indoor Air	11/29/16 10:22	12/5/16 10:30
GM111SS1116	E165002-27	Soil Gas	11/29/16 09:43	12/5/16 10:30
GM112IA1116	E165002-28	Indoor Air	11/29/16 14:53	12/5/16 10:30
GM112SS1116	E165002-29	Soil Gas	11/29/16 14:12	12/5/16 10:30
GM113IA1116	E165002-30	Indoor Air	11/29/16 16:00	12/5/16 10:30
GM113SS1116	E165002-31	Soil Gas	11/29/16 15:15	12/5/16 10:30
GM114IA1116	E165002-32	Indoor Air	11/29/16 11:04	12/5/16 10:30
GM114SS1116	E165002-33	Soil Gas	11/29/16 10:20	12/5/16 10:30
GM115IA1116	E165002-34	Indoor Air	11/30/16 16:36	12/5/16 10:30





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

GM115SS1116	E165002-35	Soil Gas	11/30/16 15:49	12/5/16 10:30
GM116IA1116	E165002-36	Indoor Air	11/30/16 10:57	12/5/16 10:30
GM116SS1116	E165002-37	Soil Gas	11/30/16 09:57	12/5/16 10:30
GM117IA1116	E165002-38	Indoor Air	11/30/16 15:22	12/5/16 10:30
GM117IA1116D	E165002-39	Indoor Air	11/30/16 15:22	12/5/16 10:30
GM117SS1116	E165002-40	Soil Gas	11/30/16 14:37	12/5/16 10:30
GM117SS1116S	E165002-41	Soil Gas	11/30/16 14:37	12/5/16 10:30
GM118IA1116	E165002-42	Indoor Air	11/30/16 14:45	12/5/16 10:30
GM118SS1116	E165002-43	Soil Gas	11/30/16 13:52	12/5/16 10:30
GM119IA1116	E165002-44	Indoor Air	11/30/16 10:14	12/5/16 10:30
GM119SS1116	E165002-45	Soil Gas	11/30/16 09:04	12/5/16 10:30
GM12AA1116	E165002-46	Ambient Air	11/29/16 08:00	12/5/16 10:30
GM12AA21116	E165002-47	Ambient Air	11/30/16 08:05	12/5/16 10:30
GM12AA31116	E165002-48	Ambient Air	12/1/16 08:00	12/5/16 10:30
GM120IA1116	E165002-49	Indoor Air	11/30/16 17:23	12/5/16 10:30
GM120SS1116	E165002-50	Soil Gas	11/30/16 16:30	12/5/16 10:30
GM121IA1116	E165002-51	Indoor Air	11/29/16 16:50	12/5/16 10:30
GM121SS1116	E165002-52	Soil Gas	11/29/16 16:05	12/5/16 10:30
GM122IA1116	E165002-53	Indoor Air	11/30/16 12:32	12/5/16 10:30
GM122SS1116	E165002-54	Soil Gas	11/30/16 11:41	12/5/16 10:30
GM123IA1116	E165002-55	Indoor Air	12/1/16 09:37	12/5/16 10:30
GM123SS1116	E165002-56	Soil Gas	12/1/16 08:38	12/5/16 10:30
GM13AA1116	E165002-57	Ambient Air	11/29/16 08:08	12/5/16 10:30
GM13AA21116	E165002-58	Ambient Air	11/30/16 08:15	12/5/16 10:30
GM13AA31116	E165002-59	Ambient Air	12/1/16 08:10	12/5/16 10:30
GM18AA1116	E165002-60	Ambient Air	11/29/16 07:21	12/5/16 10:30
GM18AA31116	E165002-62	Ambient Air	12/1/16 07:25	12/5/16 10:30
GM19AA1116	E165002-63	Ambient Air	11/29/16 07:12	12/5/16 10:30
GM19AA31116	E165002-65	Ambient Air	12/1/16 07:13	12/5/16 10:30





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

### DATA QUALIFIER DEFINITIONS

- U The analyte was not detected at or above the reporting limit.  
D-2 Due to Matrix Interference, the sample cannot be accurately quantified. The reported result is estimated.  
J The identification of the analyte is acceptable; the reported value is an estimate.  
O-2 Result greater than MDL but less than MRL.

### ACRONYMS AND ABBREVIATIONS

- CAS Chemical Abstracts Service  
Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System ([www.epa.gov/srs](http://www.epa.gov/srs)), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.
- MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
- MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
- TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

### ACCREDITATIONS:

- ISO The test, if analyzed after June 26, 2012, is accredited under the EPA Region 4 ASB's ISO/IEC 17025 accreditation issued by ANSI-ASQ National Accreditation Board/ACCLASS. Refer to certificate and scope of accreditation AT-1691.
- NR The EPA Region 4 Laboratory has not requested accreditation for this test.







UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GMTBA1116

Lab ID: E165002-01

Station ID:

Matrix: Trip Blank Air

Date Collected: 11/29/16 7:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.4	U	ug/m3	4.4	12/06/16 15:21	12/13/16 21:45	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.7	U	ug/m3	2.7	12/06/16 15:21	12/13/16 21:45	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/06/16 15:21	12/13/16 21:45	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.5	U	ug/m3	2.5	12/06/16 15:21	12/13/16 21:45	EPA TO-15
107-06-2	1,2-Dichloroethane	2.0	U	ug/m3	2.0	12/06/16 15:21	12/13/16 21:45	EPA TO-15
71-43-2	Benzene	1.6	U	ug/m3	1.6	12/06/16 15:21	12/13/16 21:45	EPA TO-15
67-66-3	Chloroform	2.4	U	ug/m3	2.4	12/06/16 15:21	12/13/16 21:45	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/06/16 15:21	12/13/16 21:45	EPA TO-15
100-41-4	Ethyl Benzene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/13/16 21:45	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/06/16 15:21	12/13/16 21:45	EPA TO-15
95-47-6	o-Xylene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/13/16 21:45	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.4	U	ug/m3	3.4	12/06/16 15:21	12/13/16 21:45	EPA TO-15
108-88-3	Toluene	1.9	U	ug/m3	1.9	12/06/16 15:21	12/13/16 21:45	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/13/16 21:45	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.7	U	ug/m3	2.7	12/06/16 15:21	12/13/16 21:45	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/06/16 15:21	12/13/16 21:45	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics**

**Project: 17-0050, Grenada Manufacturing**

**Sample ID: GMTBB1116**

**Lab ID: E165002-02**

**Station ID:**

**Matrix: Trip Blank Air**

**Date Collected: 11/30/16 7:40**

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.1	U	ug/m3	4.1	12/13/16 22:37	12/15/16 21:06	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.5	U	ug/m3	2.5	12/13/16 22:37	12/15/16 21:06	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.7	U	ug/m3	1.7	12/13/16 22:37	12/15/16 21:06	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.3	U	ug/m3	2.3	12/13/16 22:37	12/15/16 21:06	EPA TO-15
107-06-2	1,2-Dichloroethane	1.8	U	ug/m3	1.8	12/13/16 22:37	12/15/16 21:06	EPA TO-15
71-43-2	Benzene	1.5	U	ug/m3	1.5	12/13/16 22:37	12/15/16 21:06	EPA TO-15
67-66-3	Chloroform	2.2	U	ug/m3	2.2	12/13/16 22:37	12/15/16 21:06	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/13/16 22:37	12/15/16 21:06	EPA TO-15
100-41-4	Ethyl Benzene	2.0	U	ug/m3	2.0	12/13/16 22:37	12/15/16 21:06	EPA TO-15
75-09-2	Methylene Chloride	1.5	U	ug/m3	1.5	12/13/16 22:37	12/15/16 21:06	EPA TO-15
95-47-6	o-Xylene	2.0	U	ug/m3	2.0	12/13/16 22:37	12/15/16 21:06	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.1	U	ug/m3	3.1	12/13/16 22:37	12/15/16 21:06	EPA TO-15
108-88-3	Toluene	1.7	U	ug/m3	1.7	12/13/16 22:37	12/15/16 21:06	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/13/16 22:37	12/15/16 21:06	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.5	U	ug/m3	2.5	12/13/16 22:37	12/15/16 21:06	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/13/16 22:37	12/15/16 21:06	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 Region 4 Science and Ecosystem Support Division  
 980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GMTBC1116

Lab ID: E165002-03

Station ID:

Matrix: Trip Blank Air

Date Collected: 12/1/16 7:12

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.4	U	ug/m3	4.4	12/14/16 14:41	12/16/16 23:21	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	12/14/16 14:41	12/16/16 23:21	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/14/16 14:41	12/16/16 23:21	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.5	U	ug/m3	2.5	12/14/16 14:41	12/16/16 23:21	EPA TO-15
107-06-2	1,2-Dichloroethane	2.0	U	ug/m3	2.0	12/14/16 14:41	12/16/16 23:21	EPA TO-15
71-43-2	Benzene	1.6	U	ug/m3	1.6	12/14/16 14:41	12/16/16 23:21	EPA TO-15
67-66-3	Chloroform	2.4	U	ug/m3	2.4	12/14/16 14:41	12/16/16 23:21	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/14/16 14:41	12/16/16 23:21	EPA TO-15
100-41-4	Ethyl Benzene	2.2	U	ug/m3	2.2	12/14/16 14:41	12/16/16 23:21	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/14/16 14:41	12/16/16 23:21	EPA TO-15
95-47-6	o-Xylene	2.2	U	ug/m3	2.2	12/14/16 14:41	12/16/16 23:21	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.4	U	ug/m3	3.4	12/14/16 14:41	12/16/16 23:21	EPA TO-15
108-88-3	Toluene	1.9	U	ug/m3	1.9	12/14/16 14:41	12/16/16 23:21	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/14/16 14:41	12/16/16 23:21	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.7	U	ug/m3	2.7	12/14/16 14:41	12/16/16 23:21	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/14/16 14:41	12/16/16 23:21	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 Region 4 Science and Ecosystem Support Division  
 980 College Station Road, Athens, Georgia 30605-2700  
 D.A.R.T. Id: 16-0152  
 Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM01AA1116

Lab ID: E165002-04

Station ID: GM01

Matrix: Ambient Air

Date Collected: 11/29/16 7:44

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.4	U	ug/m3	4.4	12/06/16 15:21	12/13/16 22:37	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	12/06/16 15:21	12/13/16 22:37	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/06/16 15:21	12/13/16 22:37	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.5	U	ug/m3	2.5	12/06/16 15:21	12/13/16 22:37	EPA TO-15
107-06-2	1,2-Dichloroethane	2.0	U	ug/m3	2.0	12/06/16 15:21	12/13/16 22:37	EPA TO-15
71-43-2	Benzene	0.31	J, Q-2	ug/m3	1.6	12/06/16 15:21	12/13/16 22:37	EPA TO-15
67-66-3	Chloroform	2.4	U	ug/m3	2.4	12/06/16 15:21	12/13/16 22:37	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/06/16 15:21	12/13/16 22:37	EPA TO-15
100-41-4	Ethyl Benzene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/13/16 22:37	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/06/16 15:21	12/13/16 22:37	EPA TO-15
95-47-6	o-Xylene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/13/16 22:37	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.4	U	ug/m3	3.4	12/06/16 15:21	12/13/16 22:37	EPA TO-15
108-88-3	Toluene	0.40	J, Q-2	ug/m3	1.9	12/06/16 15:21	12/13/16 22:37	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/13/16 22:37	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.7	U	ug/m3	2.7	12/06/16 15:21	12/13/16 22:37	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/06/16 15:21	12/13/16 22:37	EPA TO-15







UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics**

**Project: 17-0050, Grenada Manufacturing**

**Sample ID: GM01AA1116D**

**Lab ID: E165002-05**

**Station ID: GM01**

**Matrix: Ambient Air**

**Date Collected: 11/29/16 7:44**

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
RA-7156	(m- and/or p-)Xylene	4.4	U	ug/m3	4.4	12/06/16 15:21	12/13/16 23:30	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	12/06/16 15:21	12/13/16 23:30	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/06/16 15:21	12/13/16 23:30	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.5	U	ug/m3	2.5	12/06/16 15:21	12/13/16 23:30	EPA TO-15
107-06-2	1,2-Dichloroethane	2.0	U	ug/m3	2.0	12/06/16 15:21	12/13/16 23:30	EPA TO-15
71-43-2	Benzene	0.31	J, Q-2	ug/m3	1.6	12/06/16 15:21	12/13/16 23:30	EPA TO-15
67-66-3	Chloroform	2.4	U	ug/m3	2.4	12/06/16 15:21	12/13/16 23:30	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/06/16 15:21	12/13/16 23:30	EPA TO-15
100-41-4	Ethyl Benzene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/13/16 23:30	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/06/16 15:21	12/13/16 23:30	EPA TO-15
95-47-6	o-Xylene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/13/16 23:30	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.4	U	ug/m3	3.4	12/06/16 15:21	12/13/16 23:30	EPA TO-15
108-88-3	Toluene	0.36	J, Q-2	ug/m3	1.9	12/06/16 15:21	12/13/16 23:30	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/13/16 23:30	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.7	U	ug/m3	2.7	12/06/16 15:21	12/13/16 23:30	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/06/16 15:21	12/13/16 23:30	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM01AA21116

Lab ID: E165002-06

Station ID: GM01

Matrix: Ambient Air

Date Collected: 11/30/16 7:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.60	J, Q-2	ug/m3	4.2	12/06/16 15:21	12/14/16 0:44	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.6	U	ug/m3	2.6	12/06/16 15:21	12/14/16 0:44	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.8	U	ug/m3	1.8	12/06/16 15:21	12/14/16 0:44	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.39	J, Q-2	ug/m3	2.4	12/06/16 15:21	12/14/16 0:44	EPA TO-15
107-06-2	1,2-Dichloroethane	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 0:44	EPA TO-15
71-43-2	Benzene	0.52	J, Q-2	ug/m3	1.5	12/06/16 15:21	12/14/16 0:44	EPA TO-15
67-66-3	Chloroform	2.3	U	ug/m3	2.3	12/06/16 15:21	12/14/16 0:44	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 0:44	EPA TO-15
100-41-4	Ethyl Benzene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 0:44	EPA TO-15
75-09-2	Methylene Chloride	1.6	U	ug/m3	1.6	12/06/16 15:21	12/14/16 0:44	EPA TO-15
95-47-6	o-Xylene	0.27	J, Q-2	ug/m3	2.1	12/06/16 15:21	12/14/16 0:44	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.2	U	ug/m3	3.2	12/06/16 15:21	12/14/16 0:44	EPA TO-15
108-88-3	Toluene	0.85	J, Q-2	ug/m3	1.8	12/06/16 15:21	12/14/16 0:44	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 0:44	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.5	U	ug/m3	2.5	12/06/16 15:21	12/14/16 0:44	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/06/16 15:21	12/14/16 0:44	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM01AA21116D

Lab ID: E165002-07

Station ID: GM01

Matrix: Ambient Air

Date Collected: 11/30/16 7:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.49	J, Q-2	ug/m3	4.3	12/06/16 15:21	12/14/16 1:39	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.7	U	ug/m3	2.7	12/06/16 15:21	12/14/16 1:39	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.8	U	ug/m3	1.8	12/06/16 15:21	12/14/16 1:39	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.35	J, Q-2	ug/m3	2.4	12/06/16 15:21	12/14/16 1:39	EPA TO-15
107-06-2	1,2-Dichloroethane	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 1:39	EPA TO-15
71-43-2	Benzene	0.47	J, Q-2	ug/m3	1.5	12/06/16 15:21	12/14/16 1:39	EPA TO-15
67-66-3	Chloroform	2.3	U	ug/m3	2.3	12/06/16 15:21	12/14/16 1:39	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 1:39	EPA TO-15
100-41-4	Ethyl Benzene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 1:39	EPA TO-15
75-09-2	Methylene Chloride	1.6	U	ug/m3	1.6	12/06/16 15:21	12/14/16 1:39	EPA TO-15
95-47-6	o-Xylene	0.24	J, Q-2	ug/m3	2.1	12/06/16 15:21	12/14/16 1:39	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.3	U	ug/m3	3.3	12/06/16 15:21	12/14/16 1:39	EPA TO-15
108-88-3	Toluene	0.74	J, Q-2	ug/m3	1.8	12/06/16 15:21	12/14/16 1:39	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 1:39	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.6	U	ug/m3	2.6	12/06/16 15:21	12/14/16 1:39	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/06/16 15:21	12/14/16 1:39	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM01AA31116

Lab ID: E165002-08

Station ID: GM01

Matrix: Ambient Air

Date Collected: 12/1/16 7:45

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.43	J, Q-2	ug/m3	4.3	12/06/16 15:21	12/14/16 2:31	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.7	U	ug/m3	2.7	12/06/16 15:21	12/14/16 2:31	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.8	U	ug/m3	1.8	12/06/16 15:21	12/14/16 2:31	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.57	J, Q-2	ug/m3	2.4	12/06/16 15:21	12/14/16 2:31	EPA TO-15
107-06-2	1,2-Dichloroethane	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 2:31	EPA TO-15
71-43-2	Benzene	0.47	J, Q-2	ug/m3	1.5	12/06/16 15:21	12/14/16 2:31	EPA TO-15
67-66-3	Chloroform	2.3	U	ug/m3	2.3	12/06/16 15:21	12/14/16 2:31	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 2:31	EPA TO-15
100-41-4	Ethyl Benzene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 2:31	EPA TO-15
75-09-2	Methylene Chloride	1.6	U	ug/m3	1.6	12/06/16 15:21	12/14/16 2:31	EPA TO-15
95-47-6	o-Xylene	0.24	J, Q-2	ug/m3	2.1	12/06/16 15:21	12/14/16 2:31	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.3	U	ug/m3	3.3	12/06/16 15:21	12/14/16 2:31	EPA TO-15
108-88-3	Toluene	0.72	J, Q-2	ug/m3	1.8	12/06/16 15:21	12/14/16 2:31	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 2:31	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.6	U	ug/m3	2.6	12/06/16 15:21	12/14/16 2:31	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/06/16 15:21	12/14/16 2:31	EPA TO-15







UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics**

**Project: 17-0050, Grenada Manufacturing**

Sample ID: GM01AA31116D

Lab ID: E165002-09

Station ID: GM01

Matrix: Ambient Air

Date Collected: 12/1/16 7:45

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.5	U	ug/m3	4.5	12/06/16 15:21	12/14/16 3:23	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	12/06/16 15:21	12/14/16 3:23	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 3:23	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.56	J, Q-2	ug/m3	2.5	12/06/16 15:21	12/14/16 3:23	EPA TO-15
107-06-2	1,2-Dichloroethane	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 3:23	EPA TO-15
71-43-2	Benzene	0.46	J, Q-2	ug/m3	1.6	12/06/16 15:21	12/14/16 3:23	EPA TO-15
67-66-3	Chloroform	2.4	U	ug/m3	2.4	12/06/16 15:21	12/14/16 3:23	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 3:23	EPA TO-15
100-41-4	Ethyl Benzene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/14/16 3:23	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 3:23	EPA TO-15
95-47-6	o-Xylene	0.27	J, Q-2	ug/m3	2.2	12/06/16 15:21	12/14/16 3:23	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.4	U	ug/m3	3.4	12/06/16 15:21	12/14/16 3:23	EPA TO-15
108-88-3	Toluene	0.72	J, Q-2	ug/m3	1.9	12/06/16 15:21	12/14/16 3:23	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 3:23	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.7	U	ug/m3	2.7	12/06/16 15:21	12/14/16 3:23	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/06/16 15:21	12/14/16 3:23	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM02AA1116

Lab ID: E165002-10

Station ID: GM02

Matrix: Ambient Air

Date Collected: 11/29/16 7:28

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.5	U	ug/m3	4.5	12/06/16 15:21	12/14/16 4:15	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	12/06/16 15:21	12/14/16 4:15	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 4:15	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.5	U	ug/m3	2.5	12/06/16 15:21	12/14/16 4:15	EPA TO-15
107-06-2	1,2-Dichloroethane	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 4:15	EPA TO-15
71-43-2	Benzene	0.35	J, Q-2	ug/m3	1.6	12/06/16 15:21	12/14/16 4:15	EPA TO-15
67-66-3	Chloroform	2.4	U	ug/m3	2.4	12/06/16 15:21	12/14/16 4:15	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.21	J, Q-2	ug/m3	2.0	12/06/16 15:21	12/14/16 4:15	EPA TO-15
100-41-4	Ethyl Benzene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/14/16 4:15	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 4:15	EPA TO-15
95-47-6	o-Xylene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/14/16 4:15	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.4	U	ug/m3	3.4	12/06/16 15:21	12/14/16 4:15	EPA TO-15
108-88-3	Toluene	0.42	J, Q-2	ug/m3	1.9	12/06/16 15:21	12/14/16 4:15	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 4:15	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	1.6	J, Q-2	ug/m3	2.7	12/06/16 15:21	12/14/16 4:15	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/06/16 15:21	12/14/16 4:15	EPA TO-15





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM02AA21116

Lab ID: E165002-11

Station ID: GM02

Matrix: Ambient Air

Date Collected: 11/30/16 7:28

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.55	J, Q-2	ug/m3	4.3	12/06/16 15:21	12/14/16 5:07	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.7	U	ug/m3	2.7	12/06/16 15:21	12/14/16 5:07	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.8	U	ug/m3	1.8	12/06/16 15:21	12/14/16 5:07	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.43	J, Q-2	ug/m3	2.5	12/06/16 15:21	12/14/16 5:07	EPA TO-15
107-06-2	1,2-Dichloroethane	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 5:07	EPA TO-15
71-43-2	Benzene	0.44	J, Q-2	ug/m3	1.6	12/06/16 15:21	12/14/16 5:07	EPA TO-15
67-66-3	Chloroform	2.4	U	ug/m3	2.4	12/06/16 15:21	12/14/16 5:07	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 5:07	EPA TO-15
100-41-4	Ethyl Benzene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 5:07	EPA TO-15
75-09-2	Methylene Chloride	1.6	U	ug/m3	1.6	12/06/16 15:21	12/14/16 5:07	EPA TO-15
95-47-6	o-Xylene	0.27	J, Q-2	ug/m3	2.2	12/06/16 15:21	12/14/16 5:07	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.3	U	ug/m3	3.3	12/06/16 15:21	12/14/16 5:07	EPA TO-15
108-88-3	Toluene	0.72	J, Q-2	ug/m3	1.9	12/06/16 15:21	12/14/16 5:07	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 5:07	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.35	J, Q-2	ug/m3	2.6	12/06/16 15:21	12/14/16 5:07	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/06/16 15:21	12/14/16 5:07	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM02AA31116

Lab ID: E165002-12

Station ID: GM02

Matrix: Ambient Air

Date Collected: 12/1/16 7:35

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.57	J, Q-2	ug/m3	4.3	12/06/16 15:21	12/14/16 5:58	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.7	U	ug/m3	2.7	12/06/16 15:21	12/14/16 5:58	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.8	U	ug/m3	1.8	12/06/16 15:21	12/14/16 5:58	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.89	J, Q-2	ug/m3	2.5	12/06/16 15:21	12/14/16 5:58	EPA TO-15
107-06-2	1,2-Dichloroethane	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 5:58	EPA TO-15
71-43-2	Benzene	0.48	J, Q-2	ug/m3	1.6	12/06/16 15:21	12/14/16 5:58	EPA TO-15
67-66-3	Chloroform	2.4	U	ug/m3	2.4	12/06/16 15:21	12/14/16 5:58	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 5:58	EPA TO-15
100-41-4	Ethyl Benzene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 5:58	EPA TO-15
75-09-2	Methylene Chloride	1.6	U	ug/m3	1.6	12/06/16 15:21	12/14/16 5:58	EPA TO-15
95-47-6	o-Xylene	0.33	J, Q-2	ug/m3	2.2	12/06/16 15:21	12/14/16 5:58	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.3	U	ug/m3	3.3	12/06/16 15:21	12/14/16 5:58	EPA TO-15
108-88-3	Toluene	0.82	J, Q-2	ug/m3	1.9	12/06/16 15:21	12/14/16 5:58	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 5:58	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.30	J, Q-2	ug/m3	2.6	12/06/16 15:21	12/14/16 5:58	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/06/16 15:21	12/14/16 5:58	EPA TO-15







UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM107IA1116

Lab ID: E165002-13

Station ID: GM107

Matrix: Indoor Air

Date Collected: 11/29/16 12:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.70	J, Q-2	ug/m3	4.4	12/06/16 15:21	12/14/16 6:30	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	12/06/16 15:21	12/14/16 6:50	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 6:50	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.5	U	ug/m3	2.5	12/06/16 15:21	12/14/16 6:50	EPA TO-15
107-06-2	1,2-Dichloroethane	0.45	J, Q-2	ug/m3	2.0	12/06/16 15:21	12/14/16 6:50	EPA TO-15
71-43-2	Benzene	0.56	J, Q-2	ug/m3	1.6	12/06/16 15:21	12/14/16 6:50	EPA TO-15
67-66-3	Chloroform	0.61	J, Q-2	ug/m3	2.4	12/06/16 15:21	12/14/16 6:50	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 6:50	EPA TO-15
100-41-4	Ethyl Benzene	0.26	J, Q-2	ug/m3	2.2	12/06/16 15:21	12/14/16 6:50	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 6:50	EPA TO-15
95-47-6	o-Xylene	0.29	J, Q-2	ug/m3	2.2	12/06/16 15:21	12/14/16 6:50	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.4	U	ug/m3	3.4	12/06/16 15:21	12/14/16 6:50	EPA TO-15
108-88-3	Toluene	6.2		ug/m3	1.9	12/06/16 15:21	12/14/16 6:50	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 6:50	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.7	U	ug/m3	2.7	12/06/16 15:21	12/14/16 6:50	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/06/16 15:21	12/14/16 6:50	EPA TO-15





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM1071A1116D

Lab ID: E165002-14

Station ID: GM107

Matrix: Indoor Air

Date Collected: 11/29/16 12:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.66	J, Q-2	ug/m3	4.6	12/06/16 15:21	12/14/16 7:42	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.9	U	ug/m3	2.9	12/06/16 15:21	12/14/16 7:42	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 7:42	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.6	U	ug/m3	2.6	12/06/16 15:21	12/14/16 7:42	EPA TO-15
107-06-2	1,2-Dichloroethane	0.46	J, Q-2	ug/m3	2.1	12/06/16 15:21	12/14/16 7:42	EPA TO-15
71-43-2	Benzene	0.57	J, Q-2	ug/m3	1.7	12/06/16 15:21	12/14/16 7:42	EPA TO-15
67-66-3	Chloroform	0.63	J, Q-2	ug/m3	2.5	12/06/16 15:21	12/14/16 7:42	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 7:42	EPA TO-15
100-41-4	Ethyl Benzene	0.27	J, Q-2	ug/m3	2.3	12/06/16 15:21	12/14/16 7:42	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 7:42	EPA TO-15
95-47-6	o-Xylene	0.30	J, Q-2	ug/m3	2.3	12/06/16 15:21	12/14/16 7:42	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.5	U	ug/m3	3.5	12/06/16 15:21	12/14/16 7:42	EPA TO-15
108-88-3	Toluene	6.3		ug/m3	2.0	12/06/16 15:21	12/14/16 7:42	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/14/16 7:42	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.8	U	ug/m3	2.8	12/06/16 15:21	12/14/16 7:42	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/06/16 15:21	12/14/16 7:42	EPA TO-15





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM107SS1116

Lab ID: E165002-15

Station ID: GM107

Matrix: Soil Gas

Date Collected: 11/29/16 11:18

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	3.9	U	ug/m3	3.9	12/06/16 15:21	12/14/16 8:34	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.4	U	ug/m3	2.4	12/06/16 15:21	12/14/16 8:34	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.6	U	ug/m3	1.6	12/06/16 15:21	12/14/16 8:34	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/14/16 8:34	EPA TO-15
107-06-2	1,2-Dichloroethane	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 8:34	EPA TO-15
71-43-2	Benzene	1.4	U	ug/m3	1.4	12/06/16 15:21	12/14/16 8:34	EPA TO-15
67-66-3	Chloroform	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 8:34	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 8:34	EPA TO-15
100-41-4	Ethyl Benzene	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 8:34	EPA TO-15
75-09-2	Methylene Chloride	1.5	U	ug/m3	1.5	12/06/16 15:21	12/14/16 8:34	EPA TO-15
95-47-6	o-Xylene	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 8:34	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	2.9	U	ug/m3	2.9	12/06/16 15:21	12/14/16 8:34	EPA TO-15
108-88-3	Toluene	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 8:34	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/06/16 15:21	12/14/16 8:34	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.3	U	ug/m3	2.3	12/06/16 15:21	12/14/16 8:34	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	12/06/16 15:21	12/14/16 8:34	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM107SS1116S

Lab ID: E165002-16

Station ID: GM107

Matrix: Soil Gas

Date Collected: 11/29/16 11:18

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	3.9	U	ug/m3	3.9	12/06/16 15:21	12/14/16 9:27	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.4	U	ug/m3	2.4	12/06/16 15:21	12/14/16 9:27	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.6	U	ug/m3	1.6	12/06/16 15:21	12/14/16 9:27	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/14/16 9:27	EPA TO-15
107-06-2	1,2-Dichloroethane	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 9:27	EPA TO-15
71-43-2	Benzene	1.4	U	ug/m3	1.4	12/06/16 15:21	12/14/16 9:27	EPA TO-15
67-66-3	Chloroform	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 9:27	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 9:27	EPA TO-15
100-41-4	Ethyl Benzene	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 9:27	EPA TO-15
75-09-2	Methylene Chloride	1.5	U	ug/m3	1.5	12/06/16 15:21	12/14/16 9:27	EPA TO-15
95-47-6	o-Xylene	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 9:27	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	2.9	U	ug/m3	2.9	12/06/16 15:21	12/14/16 9:27	EPA TO-15
108-88-3	Toluene	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 9:27	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/06/16 15:21	12/14/16 9:27	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.3	U	ug/m3	2.3	12/06/16 15:21	12/14/16 9:27	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	12/06/16 15:21	12/14/16 9:27	EPA TO-15







UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM108IA1116

Lab ID: E165002-17

Station ID: GM108

Matrix: Indoor Air

Date Collected: 11/30/16 11:37

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.5	U	ug/m3	4.5	12/06/16 15:21	12/14/16 10:19	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	12/06/16 15:21	12/14/16 10:19	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 10:19	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.26	J, D-2, Q-2	ug/m3	2.6	12/06/16 15:21	12/14/16 10:19	EPA TO-15
107-06-2	1,2-Dichloroethane	0.84	J, Q-2	ug/m3	2.0	12/06/16 15:21	12/14/16 10:19	EPA TO-15
71-43-2	Benzene	0.79	J, Q-2	ug/m3	1.6	12/06/16 15:21	12/14/16 10:19	EPA TO-15
67-66-3	Chloroform	0.26	J, Q-2	ug/m3	2.5	12/06/16 15:21	12/14/16 10:19	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 10:19	EPA TO-15
100-41-4	Ethyl Benzene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/14/16 10:19	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 10:19	EPA TO-15
95-47-6	o-Xylene	0.23	J, Q-2	ug/m3	2.3	12/06/16 15:21	12/14/16 10:19	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.5	U	ug/m3	3.5	12/06/16 15:21	12/14/16 10:19	EPA TO-15
108-88-3	Toluene	6.1		ug/m3	1.9	12/06/16 15:21	12/14/16 10:19	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 10:19	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.29	J, Q-2	ug/m3	2.7	12/06/16 15:21	12/14/16 10:19	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/06/16 15:21	12/14/16 10:19	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM108SS1116

Lab ID: E165002-18

Station ID: GM108

Matrix: Soil Gas

Date Collected: 11/30/16 10:38

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	3.9	U	ug/m3	3.9	12/06/16 15:21	12/14/16 12:02	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.5	U	ug/m3	2.5	12/06/16 15:21	12/14/16 12:02	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 12:02	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/14/16 12:02	EPA TO-15
107-06-2	1,2-Dichloroethane	1.8	U	ug/m3	1.8	12/06/16 15:21	12/14/16 12:02	EPA TO-15
71-43-2	Benzene	1.4	U	ug/m3	1.4	12/06/16 15:21	12/14/16 12:02	EPA TO-15
67-66-3	Chloroform	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 12:02	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/06/16 15:21	12/14/16 12:02	EPA TO-15
100-41-4	Ethyl Benzene	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 12:02	EPA TO-15
75-09-2	Methylene Chloride	1.5	U	ug/m3	1.5	12/06/16 15:21	12/14/16 12:02	EPA TO-15
95-47-6	o-Xylene	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 12:02	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.30	J, Q-2	ug/m3	3.0	12/06/16 15:21	12/14/16 12:02	EPA TO-15
108-88-3	Toluene	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 12:02	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/06/16 15:21	12/14/16 12:02	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.4	U	ug/m3	2.4	12/06/16 15:21	12/14/16 12:02	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	12/06/16 15:21	12/14/16 12:02	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics**

**Project: 17-0050, Grenada Manufacturing**

Sample ID: GM109IA1116

Lab ID: E165002-19

Station ID: GM109

Matrix: Indoor Air

Date Collected: 11/29/16 17:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	6.5		ug/m3	4.7	12/06/16 15:21	12/14/16 12:34	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.9	U	ug/m3	2.9	12/06/16 15:21	12/14/16 12:54	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 12:54	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	1.1	J, D-2, Q-2	ug/m3	2.6	12/06/16 15:21	12/14/16 12:54	EPA TO-15
107-06-2	1,2-Dichloroethane	0.50	J, Q-2	ug/m3	2.1	12/06/16 15:21	12/14/16 12:54	EPA TO-15
71-43-2	Benzene	8.3		ug/m3	1.7	12/06/16 15:21	12/14/16 12:54	EPA TO-15
67-66-3	Chloroform	4.3		ug/m3	2.5	12/06/16 15:21	12/14/16 12:54	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 12:54	EPA TO-15
100-41-4	Ethyl Benzene	2.3		ug/m3	2.3	12/06/16 15:21	12/14/16 12:54	EPA TO-15
75-09-2	Methylene Chloride	1.8	U	ug/m3	1.8	12/06/16 15:21	12/14/16 12:54	EPA TO-15
95-47-6	o-Xylene	1.5	J, Q-2	ug/m3	2.3	12/06/16 15:21	12/14/16 12:54	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.6	U	ug/m3	3.6	12/06/16 15:21	12/14/16 12:54	EPA TO-15
108-88-3	Toluene	24		ug/m3	2.0	12/06/16 15:21	12/14/16 12:54	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/14/16 12:54	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.8	U	ug/m3	2.8	12/06/16 15:21	12/14/16 12:54	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/06/16 15:21	12/14/16 12:54	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics**

**Project: 17-0050, Grenada Manufacturing**

Sample ID: GM109SS1116

Lab ID: E165002-20

Station ID: GM109

Matrix: Soil Gas

Date Collected: 11/29/16 16:44

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.0	U	ug/m3	4.0	12/06/16 15:21	12/14/16 13:44	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.5	U	ug/m3	2.5	12/06/16 15:21	12/14/16 13:44	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 13:44	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.3	U	ug/m3	2.3	12/06/16 15:21	12/14/16 13:44	EPA TO-15
107-06-2	1,2-Dichloroethane	1.8	U	ug/m3	1.8	12/06/16 15:21	12/14/16 13:44	EPA TO-15
71-43-2	Benzene	0.25	J, Q-2	ug/m3	1.5	12/06/16 15:21	12/14/16 13:44	EPA TO-15
67-66-3	Chloroform	1.5	J, Q-2	ug/m3	2.2	12/06/16 15:21	12/14/16 13:44	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/06/16 15:21	12/14/16 13:44	EPA TO-15
100-41-4	Ethyl Benzene	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 13:44	EPA TO-15
75-09-2	Methylene Chloride	1.5	U	ug/m3	1.5	12/06/16 15:21	12/14/16 13:44	EPA TO-15
95-47-6	o-Xylene	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 13:44	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.1	U	ug/m3	3.1	12/06/16 15:21	12/14/16 13:44	EPA TO-15
108-88-3	Toluene	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 13:44	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 13:44	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.5	U	ug/m3	2.5	12/06/16 15:21	12/14/16 13:44	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/06/16 15:21	12/14/16 13:44	EPA TO-15







UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics**

**Project: 17-0050, Grenada Manufacturing**

Sample ID: GM11AA1116

Lab ID: E165002-21

Station ID: GM11

Matrix: Ambient Air

Date Collected: 11/29/16 7:50

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.6	U	ug/m3	4.6	12/06/16 15:21	12/14/16 14:37	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.9	U	ug/m3	2.9	12/06/16 15:21	12/14/16 14:37	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 14:37	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.6	U	ug/m3	2.6	12/06/16 15:21	12/14/16 14:37	EPA TO-15
107-06-2	1,2-Dichloroethane	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 14:37	EPA TO-15
71-43-2	Benzene	0.30	J, Q-2	ug/m3	1.7	12/06/16 15:21	12/14/16 14:37	EPA TO-15
67-66-3	Chloroform	2.5	U	ug/m3	2.5	12/06/16 15:21	12/14/16 14:37	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 14:37	EPA TO-15
100-41-4	Ethyl Benzene	2.3	U	ug/m3	2.3	12/06/16 15:21	12/14/16 14:37	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 14:37	EPA TO-15
95-47-6	o-Xylene	2.3	U	ug/m3	2.3	12/06/16 15:21	12/14/16 14:37	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.5	U	ug/m3	3.5	12/06/16 15:21	12/14/16 14:37	EPA TO-15
108-88-3	Toluene	0.43	J, Q-2	ug/m3	2.0	12/06/16 15:21	12/14/16 14:37	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/14/16 14:37	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.8	U	ug/m3	2.8	12/06/16 15:21	12/14/16 14:37	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/06/16 15:21	12/14/16 14:37	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM11AA21116

Lab ID: E165002-22

Station ID: GM11

Matrix: Ambient Air

Date Collected: 11/30/16 7:51

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.59	J, Q-2	ug/m3	4.5	12/06/16 15:21	12/14/16 15:27	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	12/06/16 15:21	12/14/16 15:27	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/06/16 15:21	12/14/16 15:27	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.43	J, Q-2	ug/m3	2.6	12/06/16 15:21	12/14/16 15:27	EPA TO-15
107-06-2	1,2-Dichloroethane	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 15:27	EPA TO-15
71-43-2	Benzene	0.52	J, Q-2	ug/m3	1.6	12/06/16 15:21	12/14/16 15:27	EPA TO-15
67-66-3	Chloroform	2.5	U	ug/m3	2.5	12/06/16 15:21	12/14/16 15:27	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/06/16 15:21	12/14/16 15:27	EPA TO-15
100-41-4	Ethyl Benzene	2.2	U	ug/m3	2.2	12/06/16 15:21	12/14/16 15:27	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/06/16 15:21	12/14/16 15:27	EPA TO-15
95-47-6	o-Xylene	0.30	J, Q-2	ug/m3	2.3	12/06/16 15:21	12/14/16 15:27	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.5	U	ug/m3	3.5	12/06/16 15:21	12/14/16 15:27	EPA TO-15
108-88-3	Toluene	0.85	J, Q-2	ug/m3	1.9	12/06/16 15:21	12/14/16 15:27	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/06/16 15:21	12/14/16 15:27	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.8	U	ug/m3	2.8	12/06/16 15:21	12/14/16 15:27	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/06/16 15:21	12/14/16 15:27	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics**

**Project: 17-0050, Grenada Manufacturing**

Sample ID: GM11AA31116

Lab ID: E165002-23

Station ID: GM11

Matrix: Ambient Air

Date Collected: 12/1/16 7:54

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.67	J, Q-2	ug/m3	4.6	12/13/16 22:37	12/15/16 21:58	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	12/13/16 22:37	12/15/16 21:58	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/13/16 22:37	12/15/16 21:58	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.71	J, Q-2	ug/m3	2.6	12/13/16 22:37	12/15/16 21:58	EPA TO-15
107-06-2	1,2-Dichloroethane	2.0	U	ug/m3	2.0	12/13/16 22:37	12/15/16 21:58	EPA TO-15
71-43-2	Benzene	0.55	J, Q-2	ug/m3	1.6	12/13/16 22:37	12/15/16 21:58	EPA TO-15
67-66-3	Chloroform	2.5	U	ug/m3	2.5	12/13/16 22:37	12/15/16 21:58	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/13/16 22:37	12/15/16 21:58	EPA TO-15
100-41-4	Ethyl Benzene	0.24	J, Q-2	ug/m3	2.3	12/13/16 22:37	12/15/16 21:58	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/13/16 22:37	12/15/16 21:58	EPA TO-15
95-47-6	o-Xylene	0.37	J, Q-2	ug/m3	2.3	12/13/16 22:37	12/15/16 21:58	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.5	U	ug/m3	3.5	12/13/16 22:37	12/15/16 21:58	EPA TO-15
108-88-3	Toluene	1.0	J, Q-2	ug/m3	2.0	12/13/16 22:37	12/15/16 21:58	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/13/16 22:37	12/15/16 21:58	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.29	J, Q-2	ug/m3	2.8	12/13/16 22:37	12/15/16 21:58	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/13/16 22:37	12/15/16 21:58	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM110IA1116

Lab ID: E165002-24

Station ID: GM110

Matrix: Indoor Air

Date Collected: 11/29/16 14:27

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.4	J, Q-2	ug/m3	4.5	12/13/16 22:37	12/15/16 22:50	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	12/13/16 22:37	12/15/16 22:50	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/13/16 22:37	12/15/16 22:50	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.42	J, D-2, Q-2	ug/m3	2.5	12/13/16 22:37	12/15/16 22:50	EPA TO-15
107-06-2	1,2-Dichloroethane	0.93	J, Q-2	ug/m3	2.0	12/13/16 22:37	12/15/16 22:50	EPA TO-15
71-43-2	Benzene	1.2	J, Q-2	ug/m3	1.6	12/13/16 22:37	12/15/16 22:50	EPA TO-15
67-66-3	Chloroform	0.39	J, Q-2	ug/m3	2.4	12/13/16 22:37	12/15/16 22:50	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/13/16 22:37	12/15/16 22:50	EPA TO-15
100-41-4	Ethyl Benzene	2.0	J, Q-2	ug/m3	2.2	12/13/16 22:37	12/15/16 22:50	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/13/16 22:37	12/15/16 22:50	EPA TO-15
95-47-6	o-Xylene	1.9	J, Q-2	ug/m3	2.2	12/13/16 22:37	12/15/16 22:50	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.36	J, Q-2	ug/m3	3.4	12/13/16 22:37	12/15/16 22:50	EPA TO-15
108-88-3	Toluene	8.0		ug/m3	1.9	12/13/16 22:37	12/15/16 22:50	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/13/16 22:37	12/15/16 22:50	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.7	U	ug/m3	2.7	12/13/16 22:37	12/15/16 22:50	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/13/16 22:37	12/15/16 22:50	EPA TO-15







UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 Region 4 Science and Ecosystem Support Division  
 980 College Station Road, Athens, Georgia 30605-2700  
 D.A.R.T. Id: 16-0152  
 Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM110SS1116

Lab ID: E165002-25

Station ID: GM110

Matrix: Soil Gas

Date Collected: 11/29/16 13:42

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	3.8	U	ug/m3	3.8	12/13/16 22:37	12/15/16 23:42	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.4	U	ug/m3	2.4	12/13/16 22:37	12/15/16 23:42	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.6	U	ug/m3	1.6	12/13/16 22:37	12/15/16 23:42	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.2	U	ug/m3	2.2	12/13/16 22:37	12/15/16 23:42	EPA TO-15
107-06-2	1,2-Dichloroethane	1.7	U	ug/m3	1.7	12/13/16 22:37	12/15/16 23:42	EPA TO-15
71-43-2	Benzene	1.4	U	ug/m3	1.4	12/13/16 22:37	12/15/16 23:42	EPA TO-15
67-66-3	Chloroform	0.28	J, Q-2	ug/m3	2.1	12/13/16 22:37	12/15/16 23:42	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.7	U	ug/m3	1.7	12/13/16 22:37	12/15/16 23:42	EPA TO-15
100-41-4	Ethyl Benzene	1.9	U	ug/m3	1.9	12/13/16 22:37	12/15/16 23:42	EPA TO-15
75-09-2	Methylene Chloride	1.4	U	ug/m3	1.4	12/13/16 22:37	12/15/16 23:42	EPA TO-15
95-47-6	o-Xylene	1.9	U	ug/m3	1.9	12/13/16 22:37	12/15/16 23:42	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.46	J, Q-2	ug/m3	2.9	12/13/16 22:37	12/15/16 23:42	EPA TO-15
108-88-3	Toluene	1.6	U	ug/m3	1.6	12/13/16 22:37	12/15/16 23:42	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/13/16 22:37	12/15/16 23:42	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.3	U	ug/m3	2.3	12/13/16 22:37	12/15/16 23:42	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	12/13/16 22:37	12/15/16 23:42	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM1111A1116

Lab ID: E165002-26

Station ID: GM111

Matrix: Indoor Air

Date Collected: 11/29/16 10:22

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.61	J, Q-2	ug/m3	4.9	12/13/16 22:37	12/16/16 0:34	EPA TO-15
79-00-5	1,1,2-Trichloroethane	3.1	U	ug/m3	3.1	12/13/16 22:37	12/16/16 0:34	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	2.1	U	ug/m3	2.1	12/13/16 22:37	12/16/16 0:34	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.31	J, D-2, Q-2	ug/m3	2.8	12/13/16 22:37	12/16/16 0:34	EPA TO-15
107-06-2	1,2-Dichloroethane	0.33	J, Q-2	ug/m3	2.2	12/13/16 22:37	12/16/16 0:34	EPA TO-15
71-43-2	Benzene	0.85	J, Q-2	ug/m3	1.8	12/13/16 22:37	12/16/16 0:34	EPA TO-15
67-66-3	Chloroform	1.5	J, Q-2	ug/m3	2.7	12/13/16 22:37	12/16/16 0:34	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.2	U	ug/m3	2.2	12/13/16 22:37	12/16/16 0:34	EPA TO-15
100-41-4	Ethyl Benzene	0.27	J, Q-2	ug/m3	2.4	12/13/16 22:37	12/16/16 0:34	EPA TO-15
75-09-2	Methylene Chloride	1.9	U	ug/m3	1.9	12/13/16 22:37	12/16/16 0:34	EPA TO-15
95-47-6	o-Xylene	0.30	J, Q-2	ug/m3	2.5	12/13/16 22:37	12/16/16 0:34	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.8	U	ug/m3	3.8	12/13/16 22:37	12/16/16 0:34	EPA TO-15
108-88-3	Toluene	3.7		ug/m3	2.1	12/13/16 22:37	12/16/16 0:34	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.3	U	ug/m3	2.3	12/13/16 22:37	12/16/16 0:34	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	3.0	U	ug/m3	3.0	12/13/16 22:37	12/16/16 0:34	EPA TO-15
75-01-4	Vinyl chloride	1.4	U	ug/m3	1.4	12/13/16 22:37	12/16/16 0:34	EPA TO-15



















UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM111SS1116

Lab ID: E165002-27

Station ID: GM111

Matrix: Soil Gas

Date Collected: 11/29/16 9:43

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.3	U	ug/m3	4.3	12/13/16 22:37	12/16/16 1:25	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.7	U	ug/m3	2.7	12/13/16 22:37	12/16/16 1:25	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 1:25	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.4	U	ug/m3	2.4	12/13/16 22:37	12/16/16 1:25	EPA TO-15
107-06-2	1,2-Dichloroethane	1.9	U	ug/m3	1.9	12/13/16 22:37	12/16/16 1:25	EPA TO-15
71-43-2	Benzene	1.6	U	ug/m3	1.6	12/13/16 22:37	12/16/16 1:25	EPA TO-15
67-66-3	Chloroform	2.3	U	ug/m3	2.3	12/13/16 22:37	12/16/16 1:25	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/13/16 22:37	12/16/16 1:25	EPA TO-15
100-41-4	Ethyl Benzene	2.1	U	ug/m3	2.1	12/13/16 22:37	12/16/16 1:25	EPA TO-15
75-09-2	Methylene Chloride	1.6	U	ug/m3	1.6	12/13/16 22:37	12/16/16 1:25	EPA TO-15
95-47-6	o-Xylene	2.2	U	ug/m3	2.2	12/13/16 22:37	12/16/16 1:25	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.3	U	ug/m3	3.3	12/13/16 22:37	12/16/16 1:25	EPA TO-15
108-88-3	Toluene	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 1:25	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/13/16 22:37	12/16/16 1:25	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.6	U	ug/m3	2.6	12/13/16 22:37	12/16/16 1:25	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/13/16 22:37	12/16/16 1:25	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM112IA1116

Lab ID: E165002-28

Station ID: GM112

Matrix: Indoor Air

Date Collected: 11/29/16 14:53

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.69	J, Q-2	ug/m3	4.8	12/13/16 22:37	12/17/16 13:15	EPA TO-15
79-00-5	1,1,2-Trichloroethane	3.0	U	ug/m3	3.0	12/13/16 22:37	12/17/16 13:15	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	2.0	U	ug/m3	2.0	12/13/16 22:37	12/17/16 13:15	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.7	U	ug/m3	2.7	12/13/16 22:37	12/17/16 13:15	EPA TO-15
107-06-2	1,2-Dichloroethane	0.37	J, Q-2	ug/m3	2.1	12/13/16 22:37	12/17/16 13:15	EPA TO-15
71-43-2	Benzene	1.0	J, Q-2	ug/m3	1.7	12/13/16 22:37	12/17/16 13:15	EPA TO-15
67-66-3	Chloroform	3.2		ug/m3	2.6	12/13/16 22:37	12/17/16 13:15	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/13/16 22:37	12/17/16 13:15	EPA TO-15
100-41-4	Ethyl Benzene	0.26	J, Q-2	ug/m3	2.4	12/13/16 22:37	12/17/16 13:15	EPA TO-15
75-09-2	Methylene Chloride	2.1		ug/m3	1.8	12/13/16 22:37	12/17/16 13:15	EPA TO-15
95-47-6	o-Xylene	0.32	J, Q-2	ug/m3	2.4	12/13/16 22:37	12/17/16 13:15	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.7	U	ug/m3	3.7	12/13/16 22:37	12/17/16 13:15	EPA TO-15
108-88-3	Toluene	4.7		ug/m3	2.1	12/13/16 22:37	12/17/16 13:15	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.2	U	ug/m3	2.2	12/13/16 22:37	12/17/16 13:15	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.9	U	ug/m3	2.9	12/13/16 22:37	12/17/16 13:15	EPA TO-15
75-01-4	Vinyl chloride	1.4	U	ug/m3	1.4	12/13/16 22:37	12/17/16 13:15	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM112SS1116

Lab ID: E165002-29

Station ID: GM112

Matrix: Soil Gas

Date Collected: 11/29/16 14:12

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.0	U	ug/m3	4.0	12/13/16 22:37	12/16/16 4:00	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.5	U	ug/m3	2.5	12/13/16 22:37	12/16/16 4:00	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.7	U	ug/m3	1.7	12/13/16 22:37	12/16/16 4:00	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.2	U	ug/m3	2.2	12/13/16 22:37	12/16/16 4:00	EPA TO-15
107-06-2	1,2-Dichloroethane	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 4:00	EPA TO-15
71-43-2	Benzene	1.4	U	ug/m3	1.4	12/13/16 22:37	12/16/16 4:00	EPA TO-15
67-66-3	Chloroform	2.2	U	ug/m3	2.2	12/13/16 22:37	12/16/16 4:00	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 4:00	EPA TO-15
100-41-4	Ethyl Benzene	2.0	U	ug/m3	2.0	12/13/16 22:37	12/16/16 4:00	EPA TO-15
75-09-2	Methylene Chloride	1.5	U	ug/m3	1.5	12/13/16 22:37	12/16/16 4:00	EPA TO-15
95-47-6	o-Xylene	2.0	U	ug/m3	2.0	12/13/16 22:37	12/16/16 4:00	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.53	J, Q-2	ug/m3	3.0	12/13/16 22:37	12/16/16 4:00	EPA TO-15
108-88-3	Toluene	1.7	U	ug/m3	1.7	12/13/16 22:37	12/16/16 4:00	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/13/16 22:37	12/16/16 4:00	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.4	U	ug/m3	2.4	12/13/16 22:37	12/16/16 4:00	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	12/13/16 22:37	12/16/16 4:00	EPA TO-15







UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM113IA1116

Lab ID: E165002-30

Station ID: GM113

Matrix: Indoor Air

Date Collected: 11/29/16 16:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.59	J, Q-2	ug/m3	4.4	12/13/16 22:37	12/16/16 4:52	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.7	U	ug/m3	2.7	12/13/16 22:37	12/16/16 4:52	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 4:52	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.31	J, D-2, Q-2	ug/m3	2.5	12/13/16 22:37	12/16/16 4:52	EPA TO-15
107-06-2	1,2-Dichloroethane	0.60	J, Q-2	ug/m3	2.0	12/13/16 22:37	12/16/16 4:52	EPA TO-15
71-43-2	Benzene	0.39	J, Q-2	ug/m3	1.6	12/13/16 22:37	12/16/16 4:52	EPA TO-15
67-66-3	Chloroform	0.52	J, Q-2	ug/m3	2.4	12/13/16 22:37	12/16/16 4:52	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/13/16 22:37	12/16/16 4:52	EPA TO-15
100-41-4	Ethyl Benzene	2.2	U	ug/m3	2.2	12/13/16 22:37	12/16/16 4:52	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/13/16 22:37	12/16/16 4:52	EPA TO-15
95-47-6	o-Xylene	0.22	J, Q-2	ug/m3	2.2	12/13/16 22:37	12/16/16 4:52	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.3	U	ug/m3	3.3	12/13/16 22:37	12/16/16 4:52	EPA TO-15
108-88-3	Toluene	2.7		ug/m3	1.9	12/13/16 22:37	12/16/16 4:52	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/13/16 22:37	12/16/16 4:52	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.7	U	ug/m3	2.7	12/13/16 22:37	12/16/16 4:52	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/13/16 22:37	12/16/16 4:52	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM113SS1116

Lab ID: E165002-31

Station ID: GM113

Matrix: Soil Gas

Date Collected: 11/29/16 15:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	3.8	U	ug/m3	3.8	12/13/16 22:37	12/16/16 5:44	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.4	U	ug/m3	2.4	12/13/16 22:37	12/16/16 5:44	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.6	U	ug/m3	1.6	12/13/16 22:37	12/16/16 5:44	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.2	U	ug/m3	2.2	12/13/16 22:37	12/16/16 5:44	EPA TO-15
107-06-2	1,2-Dichloroethane	1.7	U	ug/m3	1.7	12/13/16 22:37	12/16/16 5:44	EPA TO-15
71-43-2	Benzene	1.4	U	ug/m3	1.4	12/13/16 22:37	12/16/16 5:44	EPA TO-15
67-66-3	Chloroform	15		ug/m3	2.1	12/13/16 22:37	12/16/16 5:44	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.7	U	ug/m3	1.7	12/13/16 22:37	12/16/16 5:44	EPA TO-15
100-41-4	Ethyl Benzene	1.9	U	ug/m3	1.9	12/13/16 22:37	12/16/16 5:44	EPA TO-15
75-09-2	Methylene Chloride	1.4	U	ug/m3	1.4	12/13/16 22:37	12/16/16 5:44	EPA TO-15
95-47-6	o-Xylene	1.9	U	ug/m3	1.9	12/13/16 22:37	12/16/16 5:44	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.62	J, Q-2	ug/m3	2.9	12/13/16 22:37	12/16/16 5:44	EPA TO-15
108-88-3	Toluene	1.6	U	ug/m3	1.6	12/13/16 22:37	12/16/16 5:44	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 5:44	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.29	J, Q-2	ug/m3	2.3	12/13/16 22:37	12/16/16 5:44	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	12/13/16 22:37	12/16/16 5:44	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 Region 4 Science and Ecosystem Support Division  
 980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM114IA1116

Lab ID: E165002-32

Station ID: GM114

Matrix: Indoor Air

Date Collected: 11/29/16 11:04

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.8	U	ug/m3	4.8	12/13/16 22:37	12/16/16 6:35	EPA TO-15
79-00-5	1,1,2-Trichloroethane	3.0	U	ug/m3	3.0	12/13/16 22:37	12/16/16 6:35	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	2.0	U	ug/m3	2.0	12/13/16 22:37	12/16/16 6:35	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.7	U	ug/m3	2.7	12/13/16 22:37	12/16/16 6:35	EPA TO-15
107-06-2	1,2-Dichloroethane	2.1	U	ug/m3	2.1	12/13/16 22:37	12/16/16 6:35	EPA TO-15
71-43-2	Benzene	1.1	J, Q-2	ug/m3	1.7	12/13/16 22:37	12/16/16 6:35	EPA TO-15
67-66-3	Chloroform	2.6	U	ug/m3	2.6	12/13/16 22:37	12/16/16 6:35	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/13/16 22:37	12/16/16 6:35	EPA TO-15
100-41-4	Ethyl Benzene	2.4	U	ug/m3	2.4	12/13/16 22:37	12/16/16 6:35	EPA TO-15
75-09-2	Methylene Chloride	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 6:35	EPA TO-15
95-47-6	o-Xylene	2.4	U	ug/m3	2.4	12/13/16 22:37	12/16/16 6:35	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.7	U	ug/m3	3.7	12/13/16 22:37	12/16/16 6:35	EPA TO-15
108-88-3	Toluene	4.4		ug/m3	2.1	12/13/16 22:37	12/16/16 6:35	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.2	U	ug/m3	2.2	12/13/16 22:37	12/16/16 6:35	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.9	U	ug/m3	2.9	12/13/16 22:37	12/16/16 6:35	EPA TO-15
75-01-4	Vinyl chloride	1.4	U	ug/m3	1.4	12/13/16 22:37	12/16/16 6:35	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM114SS1116

Lab ID: E165002-33

Station ID: GM114

Matrix: Soil Gas

Date Collected: 11/29/16 10:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	3.9	U	ug/m3	3.9	12/13/16 22:37	12/16/16 7:27	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.5	U	ug/m3	2.5	12/13/16 22:37	12/16/16 7:27	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.7	U	ug/m3	1.7	12/13/16 22:37	12/16/16 7:27	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.2	U	ug/m3	2.2	12/13/16 22:37	12/16/16 7:27	EPA TO-15
107-06-2	1,2-Dichloroethane	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 7:27	EPA TO-15
71-43-2	Benzene	1.4	U	ug/m3	1.4	12/13/16 22:37	12/16/16 7:27	EPA TO-15
67-66-3	Chloroform	2.1	U	ug/m3	2.1	12/13/16 22:37	12/16/16 7:27	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 7:27	EPA TO-15
100-41-4	Ethyl Benzene	2.0	U	ug/m3	2.0	12/13/16 22:37	12/16/16 7:27	EPA TO-15
75-09-2	Methylene Chloride	1.5	U	ug/m3	1.5	12/13/16 22:37	12/16/16 7:27	EPA TO-15
95-47-6	o-Xylene	2.0	U	ug/m3	2.0	12/13/16 22:37	12/16/16 7:27	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.0	U	ug/m3	3.0	12/13/16 22:37	12/16/16 7:27	EPA TO-15
108-88-3	Toluene	1.7	U	ug/m3	1.7	12/13/16 22:37	12/16/16 7:27	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 7:27	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.4	U	ug/m3	2.4	12/13/16 22:37	12/16/16 7:27	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	12/13/16 22:37	12/16/16 7:27	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM115IA1116

Lab ID: E165002-34

Station ID: GM115

Matrix: Indoor Air

Date Collected: 11/30/16 16:36

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.8	U	ug/m3	4.8	12/13/16 22:37	12/16/16 8:19	EPA TO-15
79-00-5	1,1,2-Trichloroethane	3.0	U	ug/m3	3.0	12/13/16 22:37	12/16/16 8:19	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	2.0	U	ug/m3	2.0	12/13/16 22:37	12/16/16 8:19	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.28	J, Q-2	ug/m3	2.7	12/13/16 22:37	12/16/16 8:19	EPA TO-15
107-06-2	1,2-Dichloroethane	2.1	U	ug/m3	2.1	12/13/16 22:37	12/16/16 8:19	EPA TO-15
71-43-2	Benzene	0.50	J, Q-2	ug/m3	1.7	12/13/16 22:37	12/16/16 8:19	EPA TO-15
67-66-3	Chloroform	2.6	U	ug/m3	2.6	12/13/16 22:37	12/16/16 8:19	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/13/16 22:37	12/16/16 8:19	EPA TO-15
100-41-4	Ethyl Benzene	2.4	U	ug/m3	2.4	12/13/16 22:37	12/16/16 8:19	EPA TO-15
75-09-2	Methylene Chloride	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 8:19	EPA TO-15
95-47-6	o-Xylene	2.4	U	ug/m3	2.4	12/13/16 22:37	12/16/16 8:19	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.7	U	ug/m3	3.7	12/13/16 22:37	12/16/16 8:19	EPA TO-15
108-88-3	Toluene	1.4	J, Q-2	ug/m3	2.1	12/13/16 22:37	12/16/16 8:19	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.2	U	ug/m3	2.2	12/13/16 22:37	12/16/16 8:19	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.9	U	ug/m3	2.9	12/13/16 22:37	12/16/16 8:19	EPA TO-15
75-01-4	Vinyl chloride	1.4	U	ug/m3	1.4	12/13/16 22:37	12/16/16 8:19	EPA TO-15





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM115SS1116

Lab ID: E165002-35

Station ID: GM115

Matrix: Soil Gas

Date Collected: 11/30/16 15:49

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	3.8	U	ug/m3	3.8	12/13/16 22:37	12/16/16 9:11	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.4	U	ug/m3	2.4	12/13/16 22:37	12/16/16 9:11	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.6	U	ug/m3	1.6	12/13/16 22:37	12/16/16 9:11	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.2	U	ug/m3	2.2	12/13/16 22:37	12/16/16 9:11	EPA TO-15
107-06-2	1,2-Dichloroethane	1.7	U	ug/m3	1.7	12/13/16 22:37	12/16/16 9:11	EPA TO-15
71-43-2	Benzene	0.41	J, Q-2	ug/m3	1.4	12/13/16 22:37	12/16/16 9:11	EPA TO-15
67-66-3	Chloroform	0.95	J, Q-2	ug/m3	2.1	12/13/16 22:37	12/16/16 9:11	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.7	U	ug/m3	1.7	12/13/16 22:37	12/16/16 9:11	EPA TO-15
100-41-4	Ethyl Benzene	1.9	U	ug/m3	1.9	12/13/16 22:37	12/16/16 9:11	EPA TO-15
75-09-2	Methylene Chloride	1.4	U	ug/m3	1.4	12/13/16 22:37	12/16/16 9:11	EPA TO-15
95-47-6	o-Xylene	1.9	U	ug/m3	1.9	12/13/16 22:37	12/16/16 9:11	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	2.9	U	ug/m3	2.9	12/13/16 22:37	12/16/16 9:11	EPA TO-15
108-88-3	Toluene	0.63	J, Q-2	ug/m3	1.6	12/13/16 22:37	12/16/16 9:11	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 9:11	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	0.27	J, Q-2	ug/m3	2.3	12/13/16 22:37	12/16/16 9:11	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	12/13/16 22:37	12/16/16 9:11	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 Region 4 Science and Ecosystem Support Division  
 980 College Station Road, Athens, Georgia 30605-2700  
 D.A.R.T. Id: 16-0152  
 Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM116IA1116

Lab ID: E165002-36

Station ID: GM116

Matrix: Indoor Air

Date Collected: 11/30/16 10:57

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	1.2	J, Q-2	ug/m3	4.3	12/13/16 22:37	12/16/16 10:03	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.7	U	ug/m3	2.7	12/13/16 22:37	12/16/16 10:03	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 10:03	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.76	J, D-2, Q-2	ug/m3	2.4	12/13/16 22:37	12/16/16 10:03	EPA TO-15
107-06-2	1,2-Dichloroethane	1.9	U	ug/m3	1.9	12/13/16 22:37	12/16/16 10:03	EPA TO-15
71-43-2	Benzene	1.3	J, Q-2	ug/m3	1.6	12/13/16 22:37	12/16/16 10:03	EPA TO-15
67-66-3	Chloroform	1.3	J, Q-2	ug/m3	2.3	12/13/16 22:37	12/16/16 10:03	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/13/16 22:37	12/16/16 10:03	EPA TO-15
100-41-4	Ethyl Benzene	0.40	J, Q-2	ug/m3	2.1	12/13/16 22:37	12/16/16 10:03	EPA TO-15
75-09-2	Methylene Chloride	1.6	U	ug/m3	1.6	12/13/16 22:37	12/16/16 10:03	EPA TO-15
95-47-6	o-Xylene	0.44	J, Q-2	ug/m3	2.2	12/13/16 22:37	12/16/16 10:03	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.3	U	ug/m3	3.3	12/13/16 22:37	12/16/16 10:03	EPA TO-15
108-88-3	Toluene	4.0		ug/m3	1.8	12/13/16 22:37	12/16/16 10:03	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/13/16 22:37	12/16/16 10:03	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.6	U	ug/m3	2.6	12/13/16 22:37	12/16/16 10:03	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/13/16 22:37	12/16/16 10:03	EPA TO-15



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM116SS1116

Lab ID: E165002-37

Station ID: GM116

Matrix: Soil Gas

Date Collected: 11/30/16 9:57

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.1	U	ug/m3	4.1	12/13/16 22:37	12/16/16 10:54	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.6	U	ug/m3	2.6	12/13/16 22:37	12/16/16 10:54	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.7	U	ug/m3	1.7	12/13/16 22:37	12/16/16 10:54	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.48	J, D-2, Q-2	ug/m3	2.3	12/13/16 22:37	12/16/16 10:54	EPA TO-15
107-06-2	1,2-Dichloroethane	1.9	U	ug/m3	1.9	12/13/16 22:37	12/16/16 10:54	EPA TO-15
71-43-2	Benzene	1.7		ug/m3	1.5	12/13/16 22:37	12/16/16 10:54	EPA TO-15
67-66-3	Chloroform	2.2	U	ug/m3	2.2	12/13/16 22:37	12/16/16 10:54	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 10:54	EPA TO-15
100-41-4	Ethyl Benzene	2.0	U	ug/m3	2.0	12/13/16 22:37	12/16/16 10:54	EPA TO-15
75-09-2	Methylene Chloride	1.6	U	ug/m3	1.6	12/13/16 22:37	12/16/16 10:54	EPA TO-15
95-47-6	o-Xylene	0.24	J, Q-2	ug/m3	2.1	12/13/16 22:37	12/16/16 10:54	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.81	J, Q-2	ug/m3	3.2	12/13/16 22:37	12/16/16 10:54	EPA TO-15
108-88-3	Toluene	0.78	J, Q-2	ug/m3	1.8	12/13/16 22:37	12/16/16 10:54	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/13/16 22:37	12/16/16 10:54	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.5	U	ug/m3	2.5	12/13/16 22:37	12/16/16 10:54	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/13/16 22:37	12/16/16 10:54	EPA TO-15



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM117IA1116

Lab ID: E165002-38

Station ID: GM117

Matrix: Indoor Air

Date Collected: 11/30/16 15:22

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.65	J, Q-2	ug/m3	4.3	12/13/16 22:37	12/16/16 11:46	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.7	U	ug/m3	2.7	12/13/16 22:37	12/16/16 11:46	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 11:46	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.56	J, Q-2	ug/m3	2.5	12/13/16 22:37	12/16/16 11:46	EPA TO-15
107-06-2	1,2-Dichloroethane	1.0	J, Q-2	ug/m3	1.9	12/13/16 22:37	12/16/16 11:46	EPA TO-15
71-43-2	Benzene	0.99	J, Q-2	ug/m3	1.6	12/13/16 22:37	12/16/16 11:46	EPA TO-15
67-66-3	Chloroform	0.58	J, Q-2	ug/m3	2.4	12/13/16 22:37	12/16/16 11:46	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/13/16 22:37	12/16/16 11:46	EPA TO-15
100-41-4	Ethyl Benzene	0.27	J, Q-2	ug/m3	2.1	12/13/16 22:37	12/16/16 11:46	EPA TO-15
75-09-2	Methylene Chloride	1.6	U	ug/m3	1.6	12/13/16 22:37	12/16/16 11:46	EPA TO-15
95-47-6	o-Xylene	0.35	J, Q-2	ug/m3	2.2	12/13/16 22:37	12/16/16 11:46	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.3	U	ug/m3	3.3	12/13/16 22:37	12/16/16 11:46	EPA TO-15
108-88-3	Toluene	2.0		ug/m3	1.9	12/13/16 22:37	12/16/16 11:46	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/13/16 22:37	12/16/16 11:46	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.6	U	ug/m3	2.6	12/13/16 22:37	12/16/16 11:46	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/13/16 22:37	12/16/16 11:46	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics**

**Project: 17-0050, Grenada Manufacturing**

Sample ID: GM117IA1116D

Lab ID: E165002-39

Station ID: GM117

Matrix: Indoor Air

Date Collected: 11/30/16 15:22

CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.74 J, Q-2	ug/m3	4.5	12/13/16 22:37	12/16/16 12:37	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8 U	ug/m3	2.8	12/13/16 22:37	12/16/16 12:37	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9 U	ug/m3	1.9	12/13/16 22:37	12/16/16 12:37	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.58 J, Q-2	ug/m3	2.6	12/13/16 22:37	12/16/16 12:37	EPA TO-15
107-06-2	1,2-Dichloroethane	0.99 J, Q-2	ug/m3	2.0	12/13/16 22:37	12/16/16 12:37	EPA TO-15
71-43-2	Benzene	1.0 J, Q-2	ug/m3	1.6	12/13/16 22:37	12/16/16 12:37	EPA TO-15
67-66-3	Chloroform	0.53 J, Q-2	ug/m3	2.5	12/13/16 22:37	12/16/16 12:37	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0 U	ug/m3	2.0	12/13/16 22:37	12/16/16 12:37	EPA TO-15
100-41-4	Ethyl Benzene	0.30 J, Q-2	ug/m3	2.2	12/13/16 22:37	12/16/16 12:37	EPA TO-15
75-09-2	Methylene Chloride	1.7 U	ug/m3	1.7	12/13/16 22:37	12/16/16 12:37	EPA TO-15
95-47-6	o-Xylene	0.39 J, Q-2	ug/m3	2.3	12/13/16 22:37	12/16/16 12:37	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.5 U	ug/m3	3.5	12/13/16 22:37	12/16/16 12:37	EPA TO-15
108-88-3	Toluene	2.1	ug/m3	1.9	12/13/16 22:37	12/16/16 12:37	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1 U	ug/m3	2.1	12/13/16 22:37	12/16/16 12:37	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.7 U	ug/m3	2.7	12/13/16 22:37	12/16/16 12:37	EPA TO-15
75-01-4	Vinyl chloride	1.3 U	ug/m3	1.3	12/13/16 22:37	12/16/16 12:37	EPA TO-15



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM117SS1116

Lab ID: E165002-40

Station ID: GM117

Matrix: Soil Gas

Date Collected: 11/30/16 14:37

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	3.9	U	ug/m3	3.9	12/13/16 22:37	12/16/16 13:30	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.4	U	ug/m3	2.4	12/13/16 22:37	12/16/16 13:30	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.7	U	ug/m3	1.7	12/13/16 22:37	12/16/16 13:30	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.2	U	ug/m3	2.2	12/13/16 22:37	12/16/16 13:30	EPA TO-15
107-06-2	1,2-Dichloroethane	0.25	J, Q-2	ug/m3	1.8	12/13/16 22:37	12/16/16 13:30	EPA TO-15
71-43-2	Benzene	0.34	J, Q-2	ug/m3	1.4	12/13/16 22:37	12/16/16 13:30	EPA TO-15
67-66-3	Chloroform	0.57	J, Q-2	ug/m3	2.1	12/13/16 22:37	12/16/16 13:30	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 13:30	EPA TO-15
100-41-4	Ethyl Benzene	1.9	U	ug/m3	1.9	12/13/16 22:37	12/16/16 13:30	EPA TO-15
75-09-2	Methylene Chloride	1.5	U	ug/m3	1.5	12/13/16 22:37	12/16/16 13:30	EPA TO-15
95-47-6	o-Xylene	2.0	U	ug/m3	2.0	12/13/16 22:37	12/16/16 13:30	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.45	J, Q-2	ug/m3	3.0	12/13/16 22:37	12/16/16 13:30	EPA TO-15
108-88-3	Toluene	0.57	J, Q-2	ug/m3	1.7	12/13/16 22:37	12/16/16 13:30	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 13:30	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.4	U	ug/m3	2.4	12/13/16 22:37	12/16/16 13:30	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	12/13/16 22:37	12/16/16 13:30	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 Region 4 Science and Ecosystem Support Division  
 980 College Station Road, Athens, Georgia 30605-2700  
 D.A.R.T. Id: 16-0152  
 Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM117SS1116S

Lab ID: E165002-41

Station ID: GM117

Matrix: Soil Gas

Date Collected: 11/30/16 14:37

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	3.9	U	ug/m3	3.9	12/13/16 22:37	12/16/16 14:21	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.5	U	ug/m3	2.5	12/13/16 22:37	12/16/16 14:21	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.7	U	ug/m3	1.7	12/13/16 22:37	12/16/16 14:21	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.2	U	ug/m3	2.2	12/13/16 22:37	12/16/16 14:21	EPA TO-15
107-06-2	1,2-Dichloroethane	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 14:21	EPA TO-15
71-43-2	Benzene	0.34	J, Q-2	ug/m3	1.4	12/13/16 22:37	12/16/16 14:21	EPA TO-15
67-66-3	Chloroform	0.57	J, Q-2	ug/m3	2.1	12/13/16 22:37	12/16/16 14:21	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 14:21	EPA TO-15
100-41-4	Ethyl Benzene	1.9	U	ug/m3	1.9	12/13/16 22:37	12/16/16 14:21	EPA TO-15
75-09-2	Methylene Chloride	1.5	U	ug/m3	1.5	12/13/16 22:37	12/16/16 14:21	EPA TO-15
95-47-6	o-Xylene	2.0	U	ug/m3	2.0	12/13/16 22:37	12/16/16 14:21	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.46	J, Q-2	ug/m3	3.0	12/13/16 22:37	12/16/16 14:21	EPA TO-15
108-88-3	Toluene	0.56	J, Q-2	ug/m3	1.7	12/13/16 22:37	12/16/16 14:21	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/13/16 22:37	12/16/16 14:21	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.4	U	ug/m3	2.4	12/13/16 22:37	12/16/16 14:21	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	12/13/16 22:37	12/16/16 14:21	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM118IA1116

Lab ID: E165002-42

Station ID: GM118

Matrix: Indoor Air

Date Collected: 11/30/16 14:45

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	2.6	J, Q-2	ug/m3	4.6	12/14/16 14:41	12/17/16 0:13	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.9	U	ug/m3	2.9	12/14/16 14:41	12/17/16 0:13	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	2.0	U	ug/m3	2.0	12/14/16 14:41	12/17/16 0:13	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	1.2	J, D-2, Q-2	ug/m3	2.6	12/14/16 14:41	12/17/16 0:13	EPA TO-15
107-06-2	1,2-Dichloroethane	1.4	J, Q-2	ug/m3	2.1	12/14/16 14:41	12/17/16 0:13	EPA TO-15
71-43-2	Benzene	2.6		ug/m3	1.7	12/14/16 14:41	12/17/16 0:13	EPA TO-15
67-66-3	Chloroform	0.41	J, Q-2	ug/m3	2.5	12/14/16 14:41	12/17/16 0:13	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/14/16 14:41	12/17/16 0:13	EPA TO-15
100-41-4	Ethyl Benzene	0.83	J, Q-2	ug/m3	2.3	12/14/16 14:41	12/17/16 0:13	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/14/16 14:41	12/17/16 0:13	EPA TO-15
95-47-6	o-Xylene	0.88	J, Q-2	ug/m3	2.3	12/14/16 14:41	12/17/16 0:13	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.5	U	ug/m3	3.5	12/14/16 14:41	12/17/16 0:13	EPA TO-15
108-88-3	Toluene	6.1		ug/m3	2.0	12/14/16 14:41	12/17/16 0:13	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.2	U	ug/m3	2.2	12/14/16 14:41	12/17/16 0:13	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.8	U	ug/m3	2.8	12/14/16 14:41	12/17/16 0:13	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/14/16 14:41	12/17/16 0:13	EPA TO-15





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM118SS1116

Lab ID: E165002-43

Station ID: GM118

Matrix: Soil Gas

Date Collected: 11/30/16 13:52

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.0	U	ug/m3	4.0	12/14/16 14:41	12/17/16 1:05	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.5	U	ug/m3	2.5	12/14/16 14:41	12/17/16 1:05	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.7	U	ug/m3	1.7	12/14/16 14:41	12/17/16 1:05	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.2	U	ug/m3	2.2	12/14/16 14:41	12/17/16 1:05	EPA TO-15
107-06-2	1,2-Dichloroethane	1.8	U	ug/m3	1.8	12/14/16 14:41	12/17/16 1:05	EPA TO-15
71-43-2	Benzene	0.14	J, Q-2	ug/m3	1.4	12/14/16 14:41	12/17/16 1:05	EPA TO-15
67-66-3	Chloroform	2.2	U	ug/m3	2.2	12/14/16 14:41	12/17/16 1:05	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/14/16 14:41	12/17/16 1:05	EPA TO-15
100-41-4	Ethyl Benzene	2.0	U	ug/m3	2.0	12/14/16 14:41	12/17/16 1:05	EPA TO-15
75-09-2	Methylene Chloride	1.5	U	ug/m3	1.5	12/14/16 14:41	12/17/16 1:05	EPA TO-15
95-47-6	o-Xylene	2.0	U	ug/m3	2.0	12/14/16 14:41	12/17/16 1:05	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.0	U	ug/m3	3.0	12/14/16 14:41	12/17/16 1:05	EPA TO-15
108-88-3	Toluene	1.7	U	ug/m3	1.7	12/14/16 14:41	12/17/16 1:05	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/14/16 14:41	12/17/16 1:05	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.4	U	ug/m3	2.4	12/14/16 14:41	12/17/16 1:05	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	12/14/16 14:41	12/17/16 1:05	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM119IA1116

Lab ID: E165002-44

Station ID: GM119

Matrix: Indoor Air

Date Collected: 11/30/16 10:14

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	3.3	J, Q-2	ug/m3	4.5	12/14/16 14:41	12/17/16 1:57	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	12/14/16 14:41	12/17/16 1:57	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/14/16 14:41	12/17/16 1:57	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.80	J, D-2, Q-2	ug/m3	2.5	12/14/16 14:41	12/17/16 1:57	EPA TO-15
107-06-2	1,2-Dichloroethane	2.5		ug/m3	2.0	12/14/16 14:41	12/17/16 1:57	EPA TO-15
71-43-2	Benzene	0.64	J, Q-2	ug/m3	1.6	12/14/16 14:41	12/17/16 1:57	EPA TO-15
67-66-3	Chloroform	2.6		ug/m3	2.4	12/14/16 14:41	12/17/16 1:57	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/14/16 14:41	12/17/16 1:57	EPA TO-15
100-41-4	Ethyl Benzene	1.2	J, Q-2	ug/m3	2.2	12/14/16 14:41	12/17/16 1:57	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/14/16 14:41	12/17/16 1:57	EPA TO-15
95-47-6	o-Xylene	0.54	J, Q-2	ug/m3	2.2	12/14/16 14:41	12/17/16 1:57	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.4	U	ug/m3	3.4	12/14/16 14:41	12/17/16 1:57	EPA TO-15
108-88-3	Toluene	5.3		ug/m3	1.9	12/14/16 14:41	12/17/16 1:57	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/14/16 14:41	12/17/16 1:57	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.7	U	ug/m3	2.7	12/14/16 14:41	12/17/16 1:57	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/14/16 14:41	12/17/16 1:57	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM119SS1116

Lab ID: E165002-45

Station ID: GM119

Matrix: Soil Gas

Date Collected: 11/30/16 9:04

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.3	U	ug/m3	4.3	12/14/16 14:41	12/17/16 2:50	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.7	U	ug/m3	2.7	12/14/16 14:41	12/17/16 2:50	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.8	U	ug/m3	1.8	12/14/16 14:41	12/17/16 2:50	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.4	U	ug/m3	2.4	12/14/16 14:41	12/17/16 2:50	EPA TO-15
107-06-2	1,2-Dichloroethane	1.9	U	ug/m3	1.9	12/14/16 14:41	12/17/16 2:50	EPA TO-15
71-43-2	Benzene	0.50	J, Q-2	ug/m3	1.5	12/14/16 14:41	12/17/16 2:50	EPA TO-15
67-66-3	Chloroform	0.31	J, Q-2	ug/m3	2.3	12/14/16 14:41	12/17/16 2:50	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/14/16 14:41	12/17/16 2:50	EPA TO-15
100-41-4	Ethyl Benzene	2.1	U	ug/m3	2.1	12/14/16 14:41	12/17/16 2:50	EPA TO-15
75-09-2	Methylene Chloride	1.6	U	ug/m3	1.6	12/14/16 14:41	12/17/16 2:50	EPA TO-15
95-47-6	o-Xylene	0.33	J, Q-2	ug/m3	2.1	12/14/16 14:41	12/17/16 2:50	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.3	U	ug/m3	3.3	12/14/16 14:41	12/17/16 2:50	EPA TO-15
108-88-3	Toluene	0.39	J, Q-2	ug/m3	1.8	12/14/16 14:41	12/17/16 2:50	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/14/16 14:41	12/17/16 2:50	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.6	U	ug/m3	2.6	12/14/16 14:41	12/17/16 2:50	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/14/16 14:41	12/17/16 2:50	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM12AA1116

Lab ID: E165002-46

Station ID: GM12

Matrix: Ambient Air

Date Collected: 11/29/16 8:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.6	U	ug/m3	4.6	12/14/16 14:41	12/17/16 4:34	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.9	U	ug/m3	2.9	12/14/16 14:41	12/17/16 4:34	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/14/16 14:41	12/17/16 4:34	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.6	U	ug/m3	2.6	12/14/16 14:41	12/17/16 4:34	EPA TO-15
107-06-2	1,2-Dichloroethane	2.1	U	ug/m3	2.1	12/14/16 14:41	12/17/16 4:34	EPA TO-15
71-43-2	Benzene	0.30	J, Q-2	ug/m3	1.7	12/14/16 14:41	12/17/16 4:34	EPA TO-15
67-66-3	Chloroform	2.5	U	ug/m3	2.5	12/14/16 14:41	12/17/16 4:34	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/14/16 14:41	12/17/16 4:34	EPA TO-15
100-41-4	Ethyl Benzene	2.3	U	ug/m3	2.3	12/14/16 14:41	12/17/16 4:34	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/14/16 14:41	12/17/16 4:34	EPA TO-15
95-47-6	o-Xylene	2.3	U	ug/m3	2.3	12/14/16 14:41	12/17/16 4:34	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.5	U	ug/m3	3.5	12/14/16 14:41	12/17/16 4:34	EPA TO-15
108-88-3	Toluene	0.41	J, Q-2	ug/m3	2.0	12/14/16 14:41	12/17/16 4:34	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.2	U	ug/m3	2.2	12/14/16 14:41	12/17/16 4:34	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.8	U	ug/m3	2.8	12/14/16 14:41	12/17/16 4:34	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/14/16 14:41	12/17/16 4:34	EPA TO-15



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM12AA21116

Lab ID: E165002-47

Station ID: GM12

Matrix: Ambient Air

Date Collected: 11/30/16 8:05

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.49	J, Q-2	ug/m3	4.5	12/14/16 14:41	12/17/16 5:26	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	12/14/16 14:41	12/17/16 5:26	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/14/16 14:41	12/17/16 5:26	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.38	J, Q-2	ug/m3	2.5	12/14/16 14:41	12/17/16 5:26	EPA TO-15
107-06-2	1,2-Dichloroethane	2.0	U	ug/m3	2.0	12/14/16 14:41	12/17/16 5:26	EPA TO-15
71-43-2	Benzene	0.50	J, Q-2	ug/m3	1.6	12/14/16 14:41	12/17/16 5:26	EPA TO-15
67-66-3	Chloroform	2.4	U	ug/m3	2.4	12/14/16 14:41	12/17/16 5:26	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/14/16 14:41	12/17/16 5:26	EPA TO-15
100-41-4	Ethyl Benzene	2.2	U	ug/m3	2.2	12/14/16 14:41	12/17/16 5:26	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/14/16 14:41	12/17/16 5:26	EPA TO-15
95-47-6	o-Xylene	0.25	J, Q-2	ug/m3	2.2	12/14/16 14:41	12/17/16 5:26	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.4	U	ug/m3	3.4	12/14/16 14:41	12/17/16 5:26	EPA TO-15
108-88-3	Toluene	0.77	J, Q-2	ug/m3	1.9	12/14/16 14:41	12/17/16 5:26	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/14/16 14:41	12/17/16 5:26	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.7	U	ug/m3	2.7	12/14/16 14:41	12/17/16 5:26	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/14/16 14:41	12/17/16 5:26	EPA TO-15



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM12AA31116

Lab ID: E165002-48

Station ID: GM12

Matrix: Ambient Air

Date Collected: 12/1/16 8:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.48	J, Q-2	ug/m3	4.5	12/14/16 14:41	12/17/16 6:18	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	12/14/16 14:41	12/17/16 6:18	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/14/16 14:41	12/17/16 6:18	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.57	J, Q-2	ug/m3	2.5	12/14/16 14:41	12/17/16 6:18	EPA TO-15
107-06-2	1,2-Dichloroethane	2.0	U	ug/m3	2.0	12/14/16 14:41	12/17/16 6:18	EPA TO-15
71-43-2	Benzene	0.49	J, Q-2	ug/m3	1.6	12/14/16 14:41	12/17/16 6:18	EPA TO-15
67-66-3	Chloroform	2.4	U	ug/m3	2.4	12/14/16 14:41	12/17/16 6:18	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/14/16 14:41	12/17/16 6:18	EPA TO-15
100-41-4	Ethyl Benzene	2.2	U	ug/m3	2.2	12/14/16 14:41	12/17/16 6:18	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/14/16 14:41	12/17/16 6:18	EPA TO-15
95-47-6	o-Xylene	0.26	J, Q-2	ug/m3	2.2	12/14/16 14:41	12/17/16 6:18	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.4	U	ug/m3	3.4	12/14/16 14:41	12/17/16 6:18	EPA TO-15
108-88-3	Toluene	0.72	J, Q-2	ug/m3	1.9	12/14/16 14:41	12/17/16 6:18	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/14/16 14:41	12/17/16 6:18	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.7	U	ug/m3	2.7	12/14/16 14:41	12/17/16 6:18	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/14/16 14:41	12/17/16 6:18	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM1201A1116

Lab ID: E165002-49

Station ID: GM120

Matrix: Indoor Air

Date Collected: 11/30/16 17:23

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	1.0	J, Q-2	ug/m3	4.4	12/14/16 14:41	12/17/16 7:10	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.8	U	ug/m3	2.8	12/14/16 14:41	12/17/16 7:10	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.9	U	ug/m3	1.9	12/14/16 14:41	12/17/16 7:10	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.70	J, D-2, Q-2	ug/m3	2.5	12/14/16 14:41	12/17/16 7:10	EPA TO-15
107-06-2	1,2-Dichloroethane	0.95	J, Q-2	ug/m3	2.0	12/14/16 14:41	12/17/16 7:10	EPA TO-15
71-43-2	Benzene	0.85	J, Q-2	ug/m3	1.6	12/14/16 14:41	12/17/16 7:10	EPA TO-15
67-66-3	Chloroform	0.33	J, Q-2	ug/m3	2.4	12/14/16 14:41	12/17/16 7:10	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/14/16 14:41	12/17/16 7:10	EPA TO-15
100-41-4	Ethyl Benzene	0.38	J, Q-2	ug/m3	2.2	12/14/16 14:41	12/17/16 7:10	EPA TO-15
75-09-2	Methylene Chloride	1.7	U	ug/m3	1.7	12/14/16 14:41	12/17/16 7:10	EPA TO-15
95-47-6	o-Xylene	0.48	J, Q-2	ug/m3	2.2	12/14/16 14:41	12/17/16 7:10	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.4	U	ug/m3	3.4	12/14/16 14:41	12/17/16 7:10	EPA TO-15
108-88-3	Toluene	4.0		ug/m3	1.9	12/14/16 14:41	12/17/16 7:10	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/14/16 14:41	12/17/16 7:10	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.7	U	ug/m3	2.7	12/14/16 14:41	12/17/16 7:10	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/14/16 14:41	12/17/16 7:10	EPA TO-15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM120SS1116

Lab ID: E165002-50

Station ID: GM120

Matrix: Soil Gas

Date Collected: 11/30/16 16:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.0	U	ug/m3	4.0	12/14/16 14:41	12/17/16 8:03	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.5	U	ug/m3	2.5	12/14/16 14:41	12/17/16 8:03	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.7	U	ug/m3	1.7	12/14/16 14:41	12/17/16 8:03	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.2	U	ug/m3	2.2	12/14/16 14:41	12/17/16 8:03	EPA TO-15
107-06-2	1,2-Dichloroethane	1.8	U	ug/m3	1.8	12/14/16 14:41	12/17/16 8:03	EPA TO-15
71-43-2	Benzene	1.4	U	ug/m3	1.4	12/14/16 14:41	12/17/16 8:03	EPA TO-15
67-66-3	Chloroform	14		ug/m3	2.1	12/14/16 14:41	12/17/16 8:03	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/14/16 14:41	12/17/16 8:03	EPA TO-15
100-41-4	Ethyl Benzene	2.0	U	ug/m3	2.0	12/14/16 14:41	12/17/16 8:03	EPA TO-15
75-09-2	Methylene Chloride	1.5	U	ug/m3	1.5	12/14/16 14:41	12/17/16 8:03	EPA TO-15
95-47-6	o-Xylene	2.0	U	ug/m3	2.0	12/14/16 14:41	12/17/16 8:03	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.0	U	ug/m3	3.0	12/14/16 14:41	12/17/16 8:03	EPA TO-15
108-88-3	Toluene	0.22	J, Q-2	ug/m3	1.7	12/14/16 14:41	12/17/16 8:03	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/14/16 14:41	12/17/16 8:03	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.4	U	ug/m3	2.4	12/14/16 14:41	12/17/16 8:03	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	12/14/16 14:41	12/17/16 8:03	EPA TO-15





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Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM1211A1116

Lab ID: E165002-51

Station ID: GM121

Matrix: Indoor Air

Date Collected: 11/29/16 16:50

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.88	J, Q-2	ug/m3	4.8	12/14/16 14:41	12/17/16 8:55	EPA TO-15
79-00-5	1,1,2-Trichloroethane	3.0	U	ug/m3	3.0	12/14/16 14:41	12/17/16 8:55	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.22	J, Q-2	ug/m3	2.0	12/14/16 14:41	12/17/16 8:55	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.73	J, D-2, Q-2	ug/m3	2.7	12/14/16 14:41	12/17/16 8:55	EPA TO-15
107-06-2	1,2-Dichloroethane	2.1	U	ug/m3	2.1	12/14/16 14:41	12/17/16 8:55	EPA TO-15
71-43-2	Benzene	0.60	J, Q-2	ug/m3	1.7	12/14/16 14:41	12/17/16 8:55	EPA TO-15
67-66-3	Chloroform	0.33	J, Q-2	ug/m3	2.6	12/14/16 14:41	12/17/16 8:55	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/14/16 14:41	12/17/16 8:55	EPA TO-15
100-41-4	Ethyl Benzene	0.32	J, Q-2	ug/m3	2.4	12/14/16 14:41	12/17/16 8:55	EPA TO-15
75-09-2	Methylene Chloride	1.8	U	ug/m3	1.8	12/14/16 14:41	12/17/16 8:55	EPA TO-15
95-47-6	o-Xylene	0.44	J, Q-2	ug/m3	2.4	12/14/16 14:41	12/17/16 8:55	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.6	U	ug/m3	3.6	12/14/16 14:41	12/17/16 8:55	EPA TO-15
108-88-3	Toluene	5.8		ug/m3	2.0	12/14/16 14:41	12/17/16 8:55	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.2	U	ug/m3	2.2	12/14/16 14:41	12/17/16 8:55	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.9	U	ug/m3	2.9	12/14/16 14:41	12/17/16 8:55	EPA TO-15
75-01-4	Vinyl chloride	1.4	U	ug/m3	1.4	12/14/16 14:41	12/17/16 8:55	EPA TO-15





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Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM12ISS1116

Lab ID: E165002-52

Station ID: GM121

Matrix: Soil Gas

Date Collected: 11/29/16 16:05

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	3.9	U	ug/m3	3.9	12/14/16 14:41	12/17/16 9:47	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.4	U	ug/m3	2.4	12/14/16 14:41	12/17/16 9:47	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.6	U	ug/m3	1.6	12/14/16 14:41	12/17/16 9:47	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.2	U	ug/m3	2.2	12/14/16 14:41	12/17/16 9:47	EPA TO-15
107-06-2	1,2-Dichloroethane	1.7	U	ug/m3	1.7	12/14/16 14:41	12/17/16 9:47	EPA TO-15
71-43-2	Benzene	1.4	U	ug/m3	1.4	12/14/16 14:41	12/17/16 9:47	EPA TO-15
67-66-3	Chloroform	1.5	J, Q-2	ug/m3	2.1	12/14/16 14:41	12/17/16 9:47	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.7	U	ug/m3	1.7	12/14/16 14:41	12/17/16 9:47	EPA TO-15
100-41-4	Ethyl Benzene	1.9	U	ug/m3	1.9	12/14/16 14:41	12/17/16 9:47	EPA TO-15
75-09-2	Methylene Chloride	1.5	U	ug/m3	1.5	12/14/16 14:41	12/17/16 9:47	EPA TO-15
95-47-6	o-Xylene	1.9	U	ug/m3	1.9	12/14/16 14:41	12/17/16 9:47	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	2.9	U	ug/m3	2.9	12/14/16 14:41	12/17/16 9:47	EPA TO-15
108-88-3	Toluene	1.7	U	ug/m3	1.7	12/14/16 14:41	12/17/16 9:47	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/14/16 14:41	12/17/16 9:47	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.3	U	ug/m3	2.3	12/14/16 14:41	12/17/16 9:47	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	12/14/16 14:41	12/17/16 9:47	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM122IA1116

Lab ID: E165002-53

Station ID: GM122

Matrix: Indoor Air

Date Collected: 11/30/16 12:32

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.96	J, Q-2	ug/m3	5.1	12/14/16 14:41	12/17/16 10:39	EPA TO-15
79-00-5	1,1,2-Trichloroethane	3.2	U	ug/m3	3.2	12/14/16 14:41	12/17/16 10:39	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	2.1	U	ug/m3	2.1	12/14/16 14:41	12/17/16 10:39	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.74	J, D-2, Q-2	ug/m3	2.9	12/14/16 14:41	12/17/16 10:39	EPA TO-15
107-06-2	1,2-Dichloroethane	0.40	J, Q-2	ug/m3	2.3	12/14/16 14:41	12/17/16 10:39	EPA TO-15
71-43-2	Benzene	0.72	J, Q-2	ug/m3	1.8	12/14/16 14:41	12/17/16 10:39	EPA TO-15
67-66-3	Chloroform	0.34	J, Q-2	ug/m3	2.7	12/14/16 14:41	12/17/16 10:39	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.3	U	ug/m3	2.3	12/14/16 14:41	12/17/16 10:39	EPA TO-15
100-41-4	Ethyl Benzene	0.39	J, Q-2	ug/m3	2.5	12/14/16 14:41	12/17/16 10:39	EPA TO-15
75-09-2	Methylene Chloride	1.9	U	ug/m3	1.9	12/14/16 14:41	12/17/16 10:39	EPA TO-15
95-47-6	o-Xylene	0.44	J, Q-2	ug/m3	2.5	12/14/16 14:41	12/17/16 10:39	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.9	U	ug/m3	3.9	12/14/16 14:41	12/17/16 10:39	EPA TO-15
108-88-3	Toluene	2.2		ug/m3	2.2	12/14/16 14:41	12/17/16 10:39	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.4	U	ug/m3	2.4	12/14/16 14:41	12/17/16 10:39	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	3.1	U	ug/m3	3.1	12/14/16 14:41	12/17/16 10:39	EPA TO-15
75-01-4	Vinyl chloride	1.4	U	ug/m3	1.4	12/14/16 14:41	12/17/16 10:39	EPA TO-15





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Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM122SS1116

Lab ID: E165002-54

Station ID: GM122

Matrix: Soil Gas

Date Collected: 11/30/16 11:41

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.1	U	ug/m3	4.1	12/16/16 16:23	12/20/16 15:46	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.6	U	ug/m3	2.6	12/16/16 16:23	12/20/16 15:46	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.7	U	ug/m3	1.7	12/16/16 16:23	12/20/16 15:46	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.3	U	ug/m3	2.3	12/16/16 16:23	12/20/16 15:46	EPA TO-15
107-06-2	1,2-Dichloroethane	1.8	U	ug/m3	1.8	12/16/16 16:23	12/20/16 15:46	EPA TO-15
71-43-2	Benzene	1.5	U	ug/m3	1.5	12/16/16 16:23	12/20/16 15:46	EPA TO-15
67-66-3	Chloroform	2.2	U	ug/m3	2.2	12/16/16 16:23	12/20/16 15:46	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/16/16 16:23	12/20/16 15:46	EPA TO-15
100-41-4	Ethyl Benzene	2.0	U	ug/m3	2.0	12/16/16 16:23	12/20/16 15:46	EPA TO-15
75-09-2	Methylene Chloride	1.5	U	ug/m3	1.5	12/16/16 16:23	12/20/16 15:46	EPA TO-15
95-47-6	o-Xylene	2.0	U	ug/m3	2.0	12/16/16 16:23	12/20/16 15:46	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.69	J, Q-2	ug/m3	3.1	12/16/16 16:23	12/20/16 15:46	EPA TO-15
108-88-3	Toluene	1.8	U	ug/m3	1.8	12/16/16 16:23	12/20/16 15:46	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/16/16 16:23	12/20/16 15:46	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.5	U	ug/m3	2.5	12/16/16 16:23	12/20/16 15:46	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/16/16 16:23	12/20/16 15:46	EPA TO-15







UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM123IA1116

Lab ID: E165002-55

Station ID: GM123

Matrix: Indoor Air

Date Collected: 12/1/16 9:37

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	3.6	J, Q-2	ug/m3	4.8	12/16/16 16:23	12/20/16 16:38	EPA TO-15
79-00-5	1,1,2-Trichloroethane	3.0	U	ug/m3	3.0	12/16/16 16:23	12/20/16 16:38	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	2.0	U	ug/m3	2.0	12/16/16 16:23	12/20/16 16:38	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	1.1	J, Q-2	ug/m3	2.7	12/16/16 16:23	12/20/16 16:38	EPA TO-15
107-06-2	1,2-Dichloroethane	1.1	J, Q-2	ug/m3	2.1	12/16/16 16:23	12/20/16 16:38	EPA TO-15
71-43-2	Benzene	36		ug/m3	1.7	12/16/16 16:23	12/20/16 16:38	EPA TO-15
67-66-3	Chloroform	3.5		ug/m3	2.6	12/16/16 16:23	12/20/16 16:38	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/16/16 16:23	12/20/16 16:38	EPA TO-15
100-41-4	Ethyl Benzene	1.8	J, Q-2	ug/m3	2.4	12/16/16 16:23	12/20/16 16:38	EPA TO-15
75-09-2	Methylene Chloride	1.8	U	ug/m3	1.8	12/16/16 16:23	12/20/16 16:38	EPA TO-15
95-47-6	o-Xylene	1.2	J, Q-2	ug/m3	2.4	12/16/16 16:23	12/20/16 16:38	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.6	U	ug/m3	3.6	12/16/16 16:23	12/20/16 16:38	EPA TO-15
108-88-3	Toluene	8.2		ug/m3	2.0	12/16/16 16:23	12/20/16 16:38	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.2	U	ug/m3	2.2	12/16/16 16:23	12/20/16 16:38	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.9	U	ug/m3	2.9	12/16/16 16:23	12/20/16 16:38	EPA TO-15
75-01-4	Vinyl chloride	1.4	U	ug/m3	1.4	12/16/16 16:23	12/20/16 16:38	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM123SS1116

Lab ID: E165002-56

Station ID: GM123

Matrix: Soil Gas

Date Collected: 12/1/16 8:38

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	3.9	U	ug/m3	3.9	12/16/16 16:23	12/20/16 17:30	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.4	U	ug/m3	2.4	12/16/16 16:23	12/20/16 17:30	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.6	U	ug/m3	1.6	12/16/16 16:23	12/20/16 17:30	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.2	U	ug/m3	2.2	12/16/16 16:23	12/20/16 17:30	EPA TO-15
107-06-2	1,2-Dichloroethane	1.7	U	ug/m3	1.7	12/16/16 16:23	12/20/16 17:30	EPA TO-15
71-43-2	Benzene	1.4	U	ug/m3	1.4	12/16/16 16:23	12/20/16 17:30	EPA TO-15
67-66-3	Chloroform	0.65	J, Q-2	ug/m3	2.1	12/16/16 16:23	12/20/16 17:30	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.7	U	ug/m3	1.7	12/16/16 16:23	12/20/16 17:30	EPA TO-15
100-41-4	Ethyl Benzene	1.9	U	ug/m3	1.9	12/16/16 16:23	12/20/16 17:30	EPA TO-15
75-09-2	Methylene Chloride	1.5	U	ug/m3	1.5	12/16/16 16:23	12/20/16 17:30	EPA TO-15
95-47-6	o-Xylene	1.9	U	ug/m3	1.9	12/16/16 16:23	12/20/16 17:30	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	J, Q-2	ug/m3	3.0	12/16/16 16:23	12/20/16 17:30	EPA TO-15
108-88-3	Toluene	1.7	U	ug/m3	1.7	12/16/16 16:23	12/20/16 17:30	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/16/16 16:23	12/20/16 17:30	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.4	U	ug/m3	2.4	12/16/16 16:23	12/20/16 17:30	EPA TO-15
75-01-4	Vinyl chloride	1.1	U	ug/m3	1.1	12/16/16 16:23	12/20/16 17:30	EPA TO-15





# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM13AA1116

Lab ID: E165002-57

Station ID: GM13

Matrix: Ambient Air

Date Collected: 11/29/16 8:08

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.7	U	ug/m3	4.7	12/16/16 16:23	12/20/16 18:22	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.9	U	ug/m3	2.9	12/16/16 16:23	12/20/16 18:22	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	2.0	U	ug/m3	2.0	12/16/16 16:23	12/20/16 18:22	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	2.6	U	ug/m3	2.6	12/16/16 16:23	12/20/16 18:22	EPA TO-15
107-06-2	1,2-Dichloroethane	2.1	U	ug/m3	2.1	12/16/16 16:23	12/20/16 18:22	EPA TO-15
71-43-2	Benzene	0.31	J, Q-2	ug/m3	1.7	12/16/16 16:23	12/20/16 18:22	EPA TO-15
67-66-3	Chloroform	2.5	U	ug/m3	2.5	12/16/16 16:23	12/20/16 18:22	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	2.1	U	ug/m3	2.1	12/16/16 16:23	12/20/16 18:22	EPA TO-15
100-41-4	Ethyl Benzene	2.3	U	ug/m3	2.3	12/16/16 16:23	12/20/16 18:22	EPA TO-15
75-09-2	Methylene Chloride	1.8	U	ug/m3	1.8	12/16/16 16:23	12/20/16 18:22	EPA TO-15
95-47-6	o-Xylene	2.3	U	ug/m3	2.3	12/16/16 16:23	12/20/16 18:22	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.6	U	ug/m3	3.6	12/16/16 16:23	12/20/16 18:22	EPA TO-15
108-88-3	Toluene	0.34	J, Q-2	ug/m3	2.0	12/16/16 16:23	12/20/16 18:22	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.2	U	ug/m3	2.2	12/16/16 16:23	12/20/16 18:22	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.8	U	ug/m3	2.8	12/16/16 16:23	12/20/16 18:22	EPA TO-15
75-01-4	Vinyl chloride	1.3	U	ug/m3	1.3	12/16/16 16:23	12/20/16 18:22	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM13AA21116

Lab ID: E165002-58

Station ID: GM13

Matrix: Ambient Air

Date Collected: 11/30/16 8:15

CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.1 U	ug/m3	4.1	12/16/16 16:23	12/20/16 20:06	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.5 U	ug/m3	2.5	12/16/16 16:23	12/20/16 20:06	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.7 U	ug/m3	1.7	12/16/16 16:23	12/20/16 20:06	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.24 J, Q-2	ug/m3	2.3	12/16/16 16:23	12/20/16 20:06	EPA TO-15
107-06-2	1,2-Dichloroethane	1.8 U	ug/m3	1.8	12/16/16 16:23	12/20/16 20:06	EPA TO-15
71-43-2	Benzene	0.44 J, Q-2	ug/m3	1.5	12/16/16 16:23	12/20/16 20:06	EPA TO-15
67-66-3	Chloroform	2.2 U	ug/m3	2.2	12/16/16 16:23	12/20/16 20:06	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.8 U	ug/m3	1.8	12/16/16 16:23	12/20/16 20:06	EPA TO-15
100-41-4	Ethyl Benzene	2.0 U	ug/m3	2.0	12/16/16 16:23	12/20/16 20:06	EPA TO-15
75-09-2	Methylene Chloride	1.5 U	ug/m3	1.5	12/16/16 16:23	12/20/16 20:06	EPA TO-15
95-47-6	o-Xylene	2.0 U	ug/m3	2.0	12/16/16 16:23	12/20/16 20:06	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.1 U	ug/m3	3.1	12/16/16 16:23	12/20/16 20:06	EPA TO-15
108-88-3	Toluene	0.51 J, Q-2	ug/m3	1.7	12/16/16 16:23	12/20/16 20:06	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.9 U	ug/m3	1.9	12/16/16 16:23	12/20/16 20:06	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.5 U	ug/m3	2.5	12/16/16 16:23	12/20/16 20:06	EPA TO-15
75-01-4	Vinyl chloride	1.2 U	ug/m3	1.2	12/16/16 16:23	12/20/16 20:06	EPA TO-15







# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM13AA31116

Lab ID: E165002-59

Station ID: GM13

Matrix: Ambient Air

Date Collected: 12/1/16 8:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	4.0	U	ug/m3	4.0	12/16/16 16:23	12/20/16 20:58	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.5	U	ug/m3	2.5	12/16/16 16:23	12/20/16 20:58	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.7	U	ug/m3	1.7	12/16/16 16:23	12/20/16 20:58	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.42	J, Q-2	ug/m3	2.3	12/16/16 16:23	12/20/16 20:58	EPA TO-15
107-06-2	1,2-Dichloroethane	1.8	U	ug/m3	1.8	12/16/16 16:23	12/20/16 20:58	EPA TO-15
71-43-2	Benzene	0.41	J, Q-2	ug/m3	1.5	12/16/16 16:23	12/20/16 20:58	EPA TO-15
67-66-3	Chloroform	2.2	U	ug/m3	2.2	12/16/16 16:23	12/20/16 20:58	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.8	U	ug/m3	1.8	12/16/16 16:23	12/20/16 20:58	EPA TO-15
100-41-4	Ethyl Benzene	2.0	U	ug/m3	2.0	12/16/16 16:23	12/20/16 20:58	EPA TO-15
75-09-2	Methylene Chloride	1.5	U	ug/m3	1.5	12/16/16 16:23	12/20/16 20:58	EPA TO-15
95-47-6	o-Xylene	2.0	U	ug/m3	2.0	12/16/16 16:23	12/20/16 20:58	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.1	U	ug/m3	3.1	12/16/16 16:23	12/20/16 20:58	EPA TO-15
108-88-3	Toluene	0.54	J, Q-2	ug/m3	1.7	12/16/16 16:23	12/20/16 20:58	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/16/16 16:23	12/20/16 20:58	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.5	U	ug/m3	2.5	12/16/16 16:23	12/20/16 20:58	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/16/16 16:23	12/20/16 20:58	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM18AA1116

Lab ID: E165002-60

Station ID: GM18

Matrix: Ambient Air

Date Collected: 11/29/16 7:21

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.70	J, Q-2	ug/m3	5.6	12/16/16 16:23	12/20/16 23:35	EPA TO-15
79-00-5	1,1,2-Trichloroethane	3.5	U	ug/m3	3.5	12/16/16 16:23	12/20/16 23:35	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	2.4	U	ug/m3	2.4	12/16/16 16:23	12/20/16 23:35	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	0.35	J, Q-2	ug/m3	3.2	12/16/16 16:23	12/20/16 23:35	EPA TO-15
107-06-2	1,2-Dichloroethane	2.5	U	ug/m3	2.5	12/16/16 16:23	12/20/16 23:35	EPA TO-15
71-43-2	Benzene	0.68	J, Q-2	ug/m3	2.0	12/16/16 16:23	12/20/16 23:35	EPA TO-15
67-66-3	Chloroform	3.2		ug/m3	3.1	12/16/16 16:23	12/20/16 23:35	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.34	J, Q-2	ug/m3	2.5	12/16/16 16:23	12/20/16 23:35	EPA TO-15
100-41-4	Ethyl Benzene	2.8	U	ug/m3	2.8	12/16/16 16:23	12/20/16 23:35	EPA TO-15
75-09-2	Methylene Chloride	3.5		ug/m3	2.1	12/16/16 16:23	12/20/16 23:35	EPA TO-15
95-47-6	o-Xylene	2.8	U	ug/m3	2.8	12/16/16 16:23	12/20/16 23:35	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	4.3	U	ug/m3	4.3	12/16/16 16:23	12/20/16 23:35	EPA TO-15
108-88-3	Toluene	0.95	J, Q-2	ug/m3	2.4	12/16/16 16:23	12/20/16 23:35	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.6	U	ug/m3	2.6	12/16/16 16:23	12/20/16 23:35	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.8	J, Q-2	ug/m3	3.4	12/16/16 16:23	12/20/16 23:35	EPA TO-15
75-01-4	Vinyl chloride	0.82	J, Q-2	ug/m3	1.6	12/16/16 16:23	12/20/16 23:35	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

**Project: 17-0050, Grenada Manufacturing**

Sample ID: GM18AA31116

Lab ID: E165002-62

Station ID: GM18

Matrix: Ambient Air

Date Collected: 12/1/16 7:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.96	J, Q-2	ug/m3	4.3	12/16/16 16:23	12/20/16 21:50	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.7	U	ug/m3	2.7	12/16/16 16:23	12/20/16 21:50	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.8	U	ug/m3	1.8	12/16/16 16:23	12/20/16 21:50	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	1.5	J, Q-2	ug/m3	2.4	12/16/16 16:23	12/20/16 21:50	EPA TO-15
107-06-2	1,2-Dichloroethane	1.9	U	ug/m3	1.9	12/16/16 16:23	12/20/16 21:50	EPA TO-15
71-43-2	Benzene	0.64	J, Q-2	ug/m3	1.6	12/16/16 16:23	12/20/16 21:50	EPA TO-15
67-66-3	Chloroform	2.3	U	ug/m3	2.3	12/16/16 16:23	12/20/16 21:50	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	0.42	J, Q-2	ug/m3	1.9	12/16/16 16:23	12/20/16 21:50	EPA TO-15
100-41-4	Ethyl Benzene	0.27	J, Q-2	ug/m3	2.1	12/16/16 16:23	12/20/16 21:50	EPA TO-15
75-09-2	Methylene Chloride	1.6	U	ug/m3	1.6	12/16/16 16:23	12/20/16 21:50	EPA TO-15
95-47-6	o-Xylene	0.55	J, Q-2	ug/m3	2.2	12/16/16 16:23	12/20/16 21:50	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.3	U	ug/m3	3.3	12/16/16 16:23	12/20/16 21:50	EPA TO-15
108-88-3	Toluene	1.1	J, Q-2	ug/m3	1.9	12/16/16 16:23	12/20/16 21:50	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/16/16 16:23	12/20/16 21:50	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.5	J, Q-2	ug/m3	2.6	12/16/16 16:23	12/20/16 21:50	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/16/16 16:23	12/20/16 21:50	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

Project: 17-0050, Grenada Manufacturing

Sample ID: GM19AA1116

Lab ID: E165002-63

Station ID: GM19

Matrix: Ambient Air

Date Collected: 11/29/16 7:12

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	6.9	U	ug/m3	6.9	12/16/16 16:23	12/21/16 0:27	EPA TO-15
79-00-5	1,1,2-Trichloroethane	4.3	U	ug/m3	4.3	12/16/16 16:23	12/21/16 0:27	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	2.9	U	ug/m3	2.9	12/16/16 16:23	12/21/16 0:27	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	3.9	U	ug/m3	3.9	12/16/16 16:23	12/21/16 0:27	EPA TO-15
107-06-2	1,2-Dichloroethane	3.1	U	ug/m3	3.1	12/16/16 16:23	12/21/16 0:27	EPA TO-15
71-43-2	Benzene	0.32	J, Q-2	ug/m3	2.5	12/16/16 16:23	12/21/16 0:27	EPA TO-15
67-66-3	Chloroform	3.7	U	ug/m3	3.7	12/16/16 16:23	12/21/16 0:27	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	3.1	U	ug/m3	3.1	12/16/16 16:23	12/21/16 0:27	EPA TO-15
100-41-4	Ethyl Benzene	3.4	U	ug/m3	3.4	12/16/16 16:23	12/21/16 0:27	EPA TO-15
75-09-2	Methylene Chloride	2.6	U	ug/m3	2.6	12/16/16 16:23	12/21/16 0:27	EPA TO-15
95-47-6	o-Xylene	3.4	U	ug/m3	3.4	12/16/16 16:23	12/21/16 0:27	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	5.2	U	ug/m3	5.2	12/16/16 16:23	12/21/16 0:27	EPA TO-15
108-88-3	Toluene	0.42	J, Q-2	ug/m3	2.9	12/16/16 16:23	12/21/16 0:27	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	3.2	U	ug/m3	3.2	12/16/16 16:23	12/21/16 0:27	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	4.2	U	ug/m3	4.2	12/16/16 16:23	12/21/16 0:27	EPA TO-15
75-01-4	Vinyl chloride	2.0	U	ug/m3	2.0	12/16/16 16:23	12/21/16 0:27	EPA TO-15







UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

## Volatile Organics

**Project: 17-0050, Grenada Manufacturing**

Sample ID: GM19AA31116

Lab ID: E165002-65

Station ID: GM19

Matrix: Ambient Air

Date Collected: 12/1/16 7:13

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	0.59	J, Q-2	ug/m3	4.3	12/16/16 16:23	12/20/16 22:42	EPA TO-15
79-00-5	1,1,2-Trichloroethane	2.7	U	ug/m3	2.7	12/16/16 16:23	12/20/16 22:42	EPA TO-15
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	1.8	U	ug/m3	1.8	12/16/16 16:23	12/20/16 22:42	EPA TO-15
95-63-6	1,2,4-Trimethylbenzene	1.8	J, Q-2	ug/m3	2.4	12/16/16 16:23	12/20/16 22:42	EPA TO-15
107-06-2	1,2-Dichloroethane	1.9	U	ug/m3	1.9	12/16/16 16:23	12/20/16 22:42	EPA TO-15
71-43-2	Benzene	0.49	J, Q-2	ug/m3	1.5	12/16/16 16:23	12/20/16 22:42	EPA TO-15
67-66-3	Chloroform	2.3	U	ug/m3	2.3	12/16/16 16:23	12/20/16 22:42	EPA TO-15
156-59-2	cis-1,2-Dichloroethene	1.9	U	ug/m3	1.9	12/16/16 16:23	12/20/16 22:42	EPA TO-15
100-41-4	Ethyl Benzene	2.1	U	ug/m3	2.1	12/16/16 16:23	12/20/16 22:42	EPA TO-15
75-09-2	Methylene Chloride	1.6	U	ug/m3	1.6	12/16/16 16:23	12/20/16 22:42	EPA TO-15
95-47-6	o-Xylene	0.53	J, Q-2	ug/m3	2.1	12/16/16 16:23	12/20/16 22:42	EPA TO-15
127-18-4	Tetrachloroethene (Tetrachloroethylene)	3.3	U	ug/m3	3.3	12/16/16 16:23	12/20/16 22:42	EPA TO-15
108-88-3	Toluene	0.74	J, Q-2	ug/m3	1.8	12/16/16 16:23	12/20/16 22:42	EPA TO-15
156-60-5	trans-1,2-Dichloroethene	2.0	U	ug/m3	2.0	12/16/16 16:23	12/20/16 22:42	EPA TO-15
79-01-6	Trichloroethene (Trichloroethylene)	2.6	U	ug/m3	2.6	12/16/16 16:23	12/20/16 22:42	EPA TO-15
75-01-4	Vinyl chloride	1.2	U	ug/m3	1.2	12/16/16 16:23	12/20/16 22:42	EPA TO-15





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics (VOA) - Quality Control**

**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1612034 - V TO-15 Air Canister**

**Blank (1612034-BLK1)**

Prepared: 12/06/16 Analyzed: 12/13/16

**EPA TO-15**

(m- and/or p-)Xylene	U	1.9	ug/m3							U
1,1,2-Trichloroethane	U	1.2	"							U
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.78	"							U
1,2,4-Trimethylbenzene	U	1.0	"							U
1,2-Dichloroethane	U	0.83	"							U
Benzene	U	0.67	"							U
Chloroform	U	1.0	"							U
cis-1,2-Dichloroethene	U	0.83	"							U
Ethyl Benzene	U	0.92	"							U
Methylene Chloride	U	0.70	"							U
o-Xylene	U	0.93	"							U
Tetrachloroethene (Tetrachloroethylene)	U	1.4	"							U
Toluene	U	0.80	"							U
trans-1,2-Dichloroethene	U	0.87	"							U
Trichloroethene (Trichloroethylene)	U	1.1	"							U
Vinyl chloride	U	0.53	"							U

**LCS (1612034-BS1)**

Prepared: 12/06/16 Analyzed: 12/13/16

**EPA TO-15**

(m- and/or p-)Xylene	4.9842	ppbv	4.4422	112	72-140
1,1,2-Trichloroethane	2.3355	"	2.2211	105	71-142
1,1-Dichloroethene (1,1-Dichloroethylene)	2.1881	"	2.2211	98.5	70-140
1,2,4-Trimethylbenzene	2.5038	"	2.2211	113	66-136
1,2-Dichloroethane	2.1845	"	2.2211	98.4	71-137
Benzene	2.3181	"	2.2211	104	70-140
Chloroform	2.3044	"	2.2211	104	70-141
cis-1,2-Dichloroethene	2.2624	"	2.2211	102	70-136
Ethyl Benzene	2.4775	"	2.2211	112	70-137
Methylene Chloride	2.0410	"	2.2211	91.9	70-142
o-Xylene	2.4835	"	2.2211	112	72-136
Tetrachloroethene (Tetrachloroethylene)	2.4318	"	2.2211	109	68-148
Toluene	2.3657	"	2.2211	107	72-138
trans-1,2-Dichloroethene	1.9913	"	2.0192	98.6	73-136
Trichloroethene (Trichloroethylene)	2.4134	"	2.2211	109	69-137
Vinyl chloride	2.3263	"	2.4230	96.0	62-151





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

Volatile Organics (VOA) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1612034 - V TO-15 Air Canister

LCS Dup (1612034-BSD1)

Prepared: 12/06/16 Analyzed: 12/13/16

EPA TO-15

(m- and/or p-)Xylene	5.0465		ppbv	4.4422		114	72-140	1.24	25	
1,1,2-Trichloroethane	2.3528		"	2.2211		106	71-142	0.735	25	
1,1-Dichloroethene (1,1-Dichloroethylene)	2.2048		"	2.2211		99.3	70-140	0.759	25	
1,2,4-Trimethylbenzene	2.5178		"	2.2211		113	66-136	0.558	25	
1,2-Dichloroethane	2.1868		"	2.2211		98.5	71-137	0.104	25	
Benzene	2.3710		"	2.2211		107	70-140	2.26	25	
Chloroform	2.3386		"	2.2211		105	70-141	1.48	25	
cis-1,2-Dichloroethene	2.2917		"	2.2211		103	70-136	1.29	25	
Ethyl Benzene	2.5118		"	2.2211		113	70-137	1.37	25	
Methylene Chloride	2.0607		"	2.2211		92.8	70-142	0.964	25	
o-Xylene	2.5159		"	2.2211		113	72-136	1.29	25	
Tetrachloroethene (Tetrachloroethylene)	2.4686		"	2.2211		111	68-148	1.50	25	
Toluene	2.4003		"	2.2211		108	72-138	1.45	25	
trans-1,2-Dichloroethene	2.0193		"	2.0192		100	73-136	1.40	25	
Trichloroethene (Trichloroethylene)	2.4488		"	2.2211		110	69-137	1.45	25	
Vinyl chloride	2.3597		"	2.4230		97.4	62-151	1.43	25	

Duplicate (1612034-DUP1)

Source: E165002-17

Prepared: 12/06/16 Analyzed: 12/14/16

EPA TO-15

(m- and/or p-)Xylene	U	4.5	ug/m3	U		20	U
1,1,2-Trichloroethane	U	2.8	"	U		20	U
1,1-Dichloroethene (1,1-Dichloroethylene)	U	1.9	"	U		20	U
1,2,4-Trimethylbenzene	0.26342	2.6	"	0.26031		1.19	20 D-2, Q-2, J
1,2-Dichloroethane	0.83474	2.0	"	0.84427		1.14	20 Q-2, J
Benzene	0.78977	1.6	"	0.78892		0.108	20 Q-2, J
Chloroform	0.27146	2.5	"	0.26435		2.66	20 Q-2, J
cis-1,2-Dichloroethene	U	2.0	"	U		20	U
Ethyl Benzene	U	2.2	"	U		20	U
Methylene Chloride	U	1.7	"	U		20	U
o-Xylene	0.23351	2.3	"	0.22929		1.82	20 Q-2, J
Tetrachloroethene (Tetrachloroethylene)	U	3.5	"	U		18.2	U
Toluene	5.9965	1.9	"	6.0588		1.03	20
trans-1,2-Dichloroethene	U	2.1	"	U		20	U
Trichloroethene (Trichloroethylene)	U	2.7	"	0.28585		20	U
Vinyl chloride	U	1.3	"	U		20	U





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 Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics (VOA) - Quality Control**  
**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1612034 - V TO-15 Air Canister**

**MRL Verification (1612034-PS1)**

Prepared: 12/06/16 Analyzed: 12/13/16

**EPA TO-15**

(m- and/or p-)Xylene	0.50389		ppbv	0.44422		113	52-160			MRL-5
1,1,2-Trichloroethane	0.24277		"	0.22211		109	51-162			MRL-5
1,1-Dichloroethene (1,1-Dichloroethylene)	0.23556		"	0.22211		106	50-160			MRL-5
1,2,4-Trimethylbenzene	0.23892		"	0.22211		108	46-156			MRL-5
1,2-Dichloroethane	0.22920		"	0.22211		103	51-157			MRL-5
Benzene	0.24008		"	0.22211		108	50-160			MRL-5
Chloroform	0.23911		"	0.22211		108	50-161			MRL-5
cis-1,2-Dichloroethene	0.23649		"	0.22211		106	50-156			MRL-5
Ethyl Benzene	0.24956		"	0.22211		112	50-157			MRL-5
Methylene Chloride	0.23073		"	0.22211		104	50-162			MRL-5
o-Xylene	0.25022		"	0.22211		113	52-156			MRL-5
Tetrachloroethene (Tetrachloroethylene)	0.25419		"	0.22211		114	48-168			MRL-5
Toluene	0.24313		"	0.22211		109	52-158			MRL-5
trans-1,2-Dichloroethene	0.20120		"	0.20192		99.6	53-156			MRL-5
Trichloroethene (Trichloroethylene)	0.26288		"	0.22211		118	49-157			MRL-5
Vinyl chloride	0.24586		"	0.24230		101	42-171			MRL-5

**Batch 1612071 - V TO-15 Air Canister**

**Blank (1612071-BLK1)**

Prepared: 12/13/16 Analyzed: 12/15/16

**EPA TO-15**

(m- and/or p-)Xylene	U	1.9	ug/m3							U
1,1,2-Trichloroethane	U	1.2	"							U
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.78	"							U
1,2,4-Trimethylbenzene	U	1.0	"							U
1,2-Dichloroethane	U	0.83	"							U
Benzene	U	0.67	"							U
Chloroform	U	1.0	"							U
cis-1,2-Dichloroethene	U	0.83	"							U
Ethyl Benzene	U	0.92	"							U
Methylene Chloride	U	0.70	"							U
o-Xylene	U	0.93	"							U
Tetrachloroethene (Tetrachloroethylene)	U	1.4	"							U
Toluene	U	0.80	"							U
trans-1,2-Dichloroethene	U	0.87	"							U
Trichloroethene (Trichloroethylene)	U	1.1	"							U
Vinyl chloride	U	0.53	"							U



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**Volatile Organics (VOA) - Quality Control**

**US-EPA, Region 4, SEDS**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1612071 - V TO-15 Air Canister**

**LCS (1612071-BS1)**

Prepared: 12/13/16 Analyzed: 12/15/16

**EPA TO-15**

(m- and/or p-)Xylene	5.2810		ppbv	4.4422		119	72-140			
1,1,2-Trichloroethane	2.4755		"	2.2211		111	71-142			
1,1-Dichloroethene (1,1-Dichloroethylene)	2.8887		"	2.2211		130	70-140			
1,2,4-Trimethylbenzene	2.5442		"	2.2211		115	66-136			
1,2-Dichloroethane	2.6411		"	2.2211		119	71-137			
Benzene	2.5013		"	2.2211		113	70-140			
Chloroform	2.5131		"	2.2211		113	70-141			
cis-1,2-Dichloroethene	2.5212		"	2.2211		114	70-136			
Ethyl Benzene	2.6182		"	2.2211		118	70-137			
Methylene Chloride	3.2936		"	2.2211		148	70-142			QC-2, QL-2
o-Xylene	2.6328		"	2.2211		119	72-136			
Tetrachloroethene (Tetrachloroethylene)	2.4726		"	2.2211		111	68-148			
Toluene	2.5173		"	2.2211		113	72-138			
trans-1,2-Dichloroethene	2.6570		"	2.0192		132	73-136			QC-2
Trichloroethene (Trichloroethylene)	2.4996		"	2.2211		113	69-137			
Vinyl chloride	2.9328		"	2.4230		121	62-151			

**LCS Dup (1612071-BSD1)**

Prepared: 12/13/16 Analyzed: 12/15/16

**EPA TO-15**

(m- and/or p-)Xylene	5.3578		ppbv	4.4422		121	72-140	1.44	25	
1,1,2-Trichloroethane	2.5779		"	2.2211		116	71-142	4.05	25	
1,1-Dichloroethene (1,1-Dichloroethylene)	3.0236		"	2.2211		136	70-140	4.56	25	
1,2,4-Trimethylbenzene	2.6080		"	2.2211		117	66-136	2.48	25	
1,2-Dichloroethane	2.7378		"	2.2211		123	71-137	3.59	25	
Benzene	2.5770		"	2.2211		116	70-140	2.98	25	
Chloroform	2.5695		"	2.2211		116	70-141	2.22	25	
cis-1,2-Dichloroethene	2.6292		"	2.2211		118	70-136	4.20	25	
Ethyl Benzene	2.6652		"	2.2211		120	70-137	1.78	25	
Methylene Chloride	3.4222		"	2.2211		154	70-142	3.83	25	QC-2, QL-2
o-Xylene	2.6932		"	2.2211		121	72-136	2.27	25	
Tetrachloroethene (Tetrachloroethylene)	2.5842		"	2.2211		116	68-148	4.41	25	
Toluene	2.6349		"	2.2211		119	72-138	4.57	25	
trans-1,2-Dichloroethene	2.7706		"	2.0192		137	73-136	4.19	25	QC-2, QL-2
Trichloroethene (Trichloroethylene)	2.5877		"	2.2211		117	69-137	3.46	25	
Vinyl chloride	3.1542		"	2.4230		130	62-151	7.27	25	





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**Volatile Organics (VOA) - Quality Control**  
**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1612071 - V TO-15 Air Canister**

**Duplicate (1612071-DUP1)**

**Source: E165002-28**

**Prepared: 12/13/16 Analyzed: 12/16/16**

**EPA TO-15**

(m- and/or p-)Xylene	0.70412	4.8	ug/m3		0.66800			5.27	20	Q-2, J
1,1,2-Trichloroethane	U	3.0	"		U				20	U
1,1-Dichloroethene (1,1-Dichloroethylene)	U	2.0	"		U				20	U
1,2,4-Trimethylbenzene	U	2.7	"		U				20	U
1,2-Dichloroethane	0.31074	2.1	"		0.33941			8.82	20	Q-2, J
Benzene	1.0794	1.7	"		1.1084			2.65	20	Q-2, J
Chloroform	3.1966	2.6	"		3.1607			1.13	20	
cis-1,2-Dichloroethene	U	2.1	"		U				20	U
Ethyl Benzene	0.27646	2.4	"		0.25409			8.43	20	Q-2, J
Methylene Chloride	2.8125	1.8	"		2.8282			0.555	20	QC-2, QI-2, QR-2
o-Xylene	0.27646	2.4	"		0.30431			9.59	20	Q-2, J
Tetrachloroethene (Tetrachloroethylene)	U	3.7	"		U				18.2	U
Toluene	4.9172	2.1	"		4.9209			0.0750	20	
trans-1,2-Dichloroethene	U	2.2	"		U				20	U
Trichloroethene (Trichloroethylene)	U	2.9	"		U				20	U
Vinyl chloride	U	1.4	"		U				20	U

**MRL Verification (1612071-PS1)**

**Prepared: 12/13/16 Analyzed: 12/15/16**

**EPA TO-15**

(m- and/or p-)Xylene	0.53434		ppbv	0.44422	120	52-160	MRL-5
1,1,2-Trichloroethane	0.26252		"	0.22211	118	51-162	MRL-5
1,1-Dichloroethene (1,1-Dichloroethylene)	0.30085		"	0.22211	135	50-160	MRL-5
1,2,4-Trimethylbenzene	0.24813		"	0.22211	112	46-156	MRL-5
1,2-Dichloroethane	0.28624		"	0.22211	129	51-157	MRL-5
Benzene	0.28188		"	0.22211	127	50-160	MRL-5
Chloroform	0.27665		"	0.22211	125	50-161	MRL-5
cis-1,2-Dichloroethene	0.26099		"	0.22211	118	50-156	MRL-5
Ethyl Benzene	0.26902		"	0.22211	121	50-157	MRL-5
Methylene Chloride	0.37098		"	0.22211	167	50-162	MRL-5, QC-2, QR-2
o-Xylene	0.27257		"	0.22211	123	52-156	MRL-5
Tetrachloroethene (Tetrachloroethylene)	0.26385		"	0.22211	119	48-168	MRL-5
Toluene	0.26752		"	0.22211	120	52-158	MRL-5
trans-1,2-Dichloroethene	0.28417		"	0.20192	141	53-156	MRL-5, QC-2
Trichloroethene (Trichloroethylene)	0.27781		"	0.22211	125	49-157	MRL-5
Vinyl chloride	0.31599		"	0.24230	130	42-171	MRL-5



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**Volatile Organics (VOA) - Quality Control**  
**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1612071 - V TO-15 Air Canister**

MRL Verification (1612071-PS1)

Prepared: 12/13/16 Analyzed: 12/15/16

**Batch 1612078 - V TO-15 Air Canister**

**Blank (1612078-BLK1)**

Prepared: 12/14/16 Analyzed: 12/16/16

**EPA TO-15**

(m- and/or p-)Xylene	U	1.9	ug/m3							U
1,1,2-Trichloroethane	U	1.2	"							U
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.78	"							U
1,2,4-Trimethylbenzene	U	1.0	"							U
1,2-Dichloroethane	U	0.83	"							U
Benzene	U	0.67	"							U
Chloroform	U	1.0	"							U
cis-1,2-Dichloroethene	U	0.83	"							U
Ethyl Benzene	U	0.92	"							U
Methylene Chloride	U	0.70	"							U
o-Xylene	U	0.93	"							U
Tetrachloroethene (Tetrachloroethylene)	U	1.4	"							U
Toluene	U	0.80	"							U
trans-1,2-Dichloroethene	U	0.87	"							U
Trichloroethene (Trichloroethylene)	U	1.1	"							U
Vinyl chloride	U	0.53	"							U

**Blank (1612078-BLK2)**

Prepared: 12/14/16 Analyzed: 12/17/16

**EPA TO-15**

(m- and/or p-)Xylene	U	1.9	ug/m3							U
1,1,2-Trichloroethane	U	1.2	"							U
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.78	"							U
1,2,4-Trimethylbenzene	U	1.0	"							U
1,2-Dichloroethane	U	0.83	"							U
Benzene	U	0.67	"							U
Chloroform	U	1.0	"							U
cis-1,2-Dichloroethene	U	0.83	"							U
Ethyl Benzene	U	0.92	"							U
Methylene Chloride	U	0.70	"							U
o-Xylene	U	0.93	"							U
Tetrachloroethene (Tetrachloroethylene)	U	1.4	"							U
Toluene	U	0.80	"							U
trans-1,2-Dichloroethene	U	0.87	"							U
Trichloroethene (Trichloroethylene)	U	1.1	"							U
Vinyl chloride	U	0.53	"							U



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**Volatile Organics (VOA) - Quality Control**

**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1612078 - V TO-15 Air Canister**

**Blank (1612078-BLK2)**

Prepared: 12/14/16 Analyzed: 12/17/16

**LCS (1612078-BS1)**

Prepared: 12/14/16 Analyzed: 12/16/16

**EPA TO-15**

(m- and/or p-)Xylene	5.3167		ppbv	4.4422	120	72-140
1,1,2-Trichloroethane	2.5237		"	2.2211	114	71-142
1,1-Dichloroethene (1,1-Dichloroethylene)	2.8359		"	2.2211	128	70-140
1,2,4-Trimethylbenzene	2.6644		"	2.2211	120	66-136
1,2-Dichloroethane	2.8729		"	2.2211	129	71-137
Benzene	2.5206		"	2.2211	113	70-140
Chloroform	2.7193		"	2.2211	122	70-141
cis-1,2-Dichloroethene	2.6298		"	2.2211	118	70-136
Ethyl Benzene	2.6028		"	2.2211	117	70-137
Methylene Chloride	2.6414		"	2.2211	119	70-142
o-Xylene	2.6374		"	2.2211	119	72-136
Tetrachloroethene (Tetrachloroethylene)	2.5737		"	2.2211	116	68-148
Toluene	2.5541		"	2.2211	115	72-138
trans-1,2-Dichloroethene	2.4843		"	2.0192	123	73-136
Trichloroethene (Trichloroethylene)	2.5492		"	2.2211	115	69-137
Vinyl chloride	3.0355		"	2.4230	125	62-151

**LCS Dup (1612078-BSD1)**

Prepared: 12/14/16 Analyzed: 12/16/16

**EPA TO-15**

(m- and/or p-)Xylene	5.2865		ppbv	4.4422	119	72-140	0.570	25
1,1,2-Trichloroethane	2.5680		"	2.2211	116	71-142	1.74	25
1,1-Dichloroethene (1,1-Dichloroethylene)	2.7750		"	2.2211	125	70-140	2.17	25
1,2,4-Trimethylbenzene	2.6593		"	2.2211	120	66-136	0.193	25
1,2-Dichloroethane	2.9282		"	2.2211	132	71-137	1.91	25
Benzene	2.5814		"	2.2211	116	70-140	2.38	25
Chloroform	2.7721		"	2.2211	125	70-141	1.92	25
cis-1,2-Dichloroethene	2.5611		"	2.2211	115	70-136	2.65	25
Ethyl Benzene	2.6113		"	2.2211	118	70-137	0.325	25
Methylene Chloride	2.5731		"	2.2211	116	70-142	2.62	25
o-Xylene	2.6514		"	2.2211	119	72-136	0.529	25
Tetrachloroethene (Tetrachloroethylene)	2.6312		"	2.2211	118	68-148	2.21	25
Toluene	2.5974		"	2.2211	117	72-138	1.68	25
trans-1,2-Dichloroethene	2.3789		"	2.0192	118	73-136	4.33	25
Trichloroethene (Trichloroethylene)	2.6734		"	2.2211	120	69-137	4.76	25
Vinyl chloride	3.0117		"	2.4230	124	62-151	0.787	25



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics (VOA) - Quality Control**  
**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1612078 - V TO-15 Air Canister**

**Duplicate (1612078-DUP1)**

**Source: E165002-45**

Prepared: 12/14/16 Analyzed: 12/17/16

**EPA TO-15**

(m- and/or p-)Xylene	U	4.3	ug/m3		U			20		U
1,1,2-Trichloroethane	U	2.7	"		U			20		U
1,1-Dichloroethene (1,1-Dichloroethylene)	U	1.8	"		U			20		U
1,2,4-Trimethylbenzene	U	2.4	"		U			20		U
1,2-Dichloroethane	U	1.9	"		U			20		U
Benzene	0.51003	1.5	"		0.49696			2.60	20	Q-2, J
Chloroform	0.32226	2.3	"		0.30779			4.59	20	Q-2, J
cis-1,2-Dichloroethene	U	1.9	"		U			20		U
Ethyl Benzene	U	2.1	"		U			20		U
Methylene Chloride	U	1.6	"		U			20		U
o-Xylene	0.30626	2.1	"		0.32862			7.04	20	Q-2, J
Tetrachloroethene (Tetrachloroethylene)	U	3.3	"		U			18.2		U
Toluene	0.38175	1.8	"		0.38782			1.58	20	Q-2, J
trans-1,2-Dichloroethene	U	2.0	"		U			20		U
Trichloroethene (Trichloroethylene)	U	2.6	"		U			20		U
Vinyl chloride	U	1.2	"		U			20		U

**MRL Verification (1612078-PS1)**

Prepared: 12/14/16 Analyzed: 12/16/16

**EPA TO-15**

(m- and/or p-)Xylene	0.53573	ppbv	0.44422	121	52-160	MRL-5
1,1,2-Trichloroethane	0.25595	"	0.22211	115	51-162	MRL-5
1,1-Dichloroethene (1,1-Dichloroethylene)	0.28984	"	0.22211	130	50-160	MRL-5
1,2,4-Trimethylbenzene	0.26120	"	0.22211	118	46-156	MRL-5
1,2-Dichloroethane	0.31023	"	0.22211	140	51-157	MRL-5
Benzene	0.28557	"	0.22211	129	50-160	MRL-5
Chloroform	0.30442	"	0.22211	137	50-161	MRL-5
cis-1,2-Dichloroethene	0.26609	"	0.22211	120	50-156	MRL-5
Ethyl Benzene	0.27813	"	0.22211	125	50-157	MRL-5
Methylene Chloride	0.29121	"	0.22211	131	50-162	MRL-5
o-Xylene	0.27911	"	0.22211	126	52-156	MRL-5
Tetrachloroethene (Tetrachloroethylene)	0.27155	"	0.22211	122	48-168	MRL-5
Toluene	0.27393	"	0.22211	123	52-158	MRL-5
trans-1,2-Dichloroethene	0.25764	"	0.20192	128	53-156	MRL-5
Trichloroethene (Trichloroethylene)	0.27420	"	0.22211	123	49-157	MRL-5
Vinyl chloride	0.32107	"	0.24230	133	42-171	MRL-5



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 Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics (VOA) - Quality Control**  
**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1612083 - V TO-15 Air Canister**

**Blank (1612083-BLK1)**

Prepared: 12/16/16 Analyzed: 12/20/16

**EPA TO-15**

(m- and/or p-)Xylene	U	1.9	ug/m3							U
1,1,2-Trichloroethane	U	1.2	"							U
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.78	"							U
1,2,4-Trimethylbenzene	U	1.0	"							U
1,2-Dichloroethane	U	0.83	"							U
Benzene	U	0.67	"							U
Chloroform	U	1.0	"							U
cis-1,2-Dichloroethene	U	0.83	"							U
Ethyl Benzene	U	0.92	"							U
Methylene Chloride	U	0.70	"							U
o-Xylene	U	0.93	"							U
Tetrachloroethene (Tetrachloroethylene)	U	1.4	"							U
Toluene	U	0.80	"							U
trans-1,2-Dichloroethene	U	0.87	"							U
Trichloroethene (Trichloroethylene)	U	1.1	"							U
Vinyl chloride	U	0.53	"							U

**LCS (1612083-BS1)**

Prepared: 12/16/16 Analyzed: 12/20/16

**EPA TO-15**

(m- and/or p-)Xylene	4.4455	ppbv	4.3459	102	72-140
1,1,2-Trichloroethane	2.0839	"	2.1729	95.9	71-142
1,1-Dichloroethene (1,1-Dichloroethylene)	2.2364	"	2.1729	103	70-140
1,2,4-Trimethylbenzene	2.2500	"	2.1729	104	66-136
1,2-Dichloroethane	2.4331	"	2.1729	112	71-137
Benzene	2.0020	"	2.1729	92.1	70-140
Chloroform	2.2770	"	2.1729	105	70-141
cis-1,2-Dichloroethene	2.0884	"	2.1729	96.1	70-136
Ethyl Benzene	2.1747	"	2.1729	100	70-137
Methylene Chloride	2.1350	"	2.1729	98.3	70-142
o-Xylene	2.2342	"	2.1729	103	72-136
Tetrachloroethene (Tetrachloroethylene)	2.0653	"	2.1729	95.0	68-148
Toluene	2.0305	"	2.1729	93.4	72-138
trans-1,2-Dichloroethene	1.9190	"	2.1532	89.1	73-136
Trichloroethene (Trichloroethylene)	2.0818	"	2.1729	95.8	69-137
Vinyl chloride	2.4197	"	2.3705	102	62-151



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D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics (VOA) - Quality Control**

**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1612083 - V TO-15 Air Canister**

**LCS Dup (1612083-BSD1)**

Prepared: 12/16/16 Analyzed: 12/20/16

**EPA TO-15**

(m- and/or p-)Xylene	4.3999		ppbv	4.3459		101	72-140	1.03	25	
1,1,2-Trichloroethane	2.0338		"	2.1729		93.6	71-142	2.44	25	
1,1-Dichloroethene (1,1-Dichloroethylene)	2.2921		"	2.1729		105	70-140	2.46	25	
1,2,4-Trimethylbenzene	2.1982		"	2.1729		101	66-136	2.33	25	
1,2-Dichloroethane	2.4639		"	2.1729		113	71-137	1.26	25	
Benzene	2.0295		"	2.1729		93.4	70-140	1.36	25	
Chloroform	2.2802		"	2.1729		105	70-141	0.143	25	
cis-1,2-Dichloroethene	2.0912		"	2.1729		96.2	70-136	0.131	25	
Ethyl Benzene	2.1661		"	2.1729		99.7	70-137	0.397	25	
Methylene Chloride	2.0854		"	2.1729		96.0	70-142	2.35	25	
o-Xylene	2.1848		"	2.1729		101	72-136	2.23	25	
Tetrachloroethene (Tetrachloroethylene)	2.0957		"	2.1729		96.4	68-148	1.46	25	
Toluene	2.0626		"	2.1729		94.9	72-138	1.57	25	
trans-1,2-Dichloroethene	1.9383		"	2.1532		90.0	73-136	1.00	25	
Trichloroethene (Trichloroethylene)	2.1007		"	2.1729		96.7	69-137	0.902	25	
Vinyl chloride	2.4934		"	2.3705		105	62-151	3.00	25	

**Duplicate (1612083-DUP1)**

Source: E165002-57

Prepared: 12/16/16 Analyzed: 12/20/16

**EPA TO-15**

(m- and/or p-)Xylene	U	4.7	ug/m3	U		20	U
1,1,2-Trichloroethane	U	2.9	"	U		20	U
1,1-Dichloroethene (1,1-Dichloroethylene)	U	2.0	"	U		20	U
1,2,4-Trimethylbenzene	U	2.6	"	U		20	U
1,2-Dichloroethane	U	2.1	"	U		20	U
Benzene	0.32996	1.7	"	0.30710		7.18	20 Q-2, J
Chloroform	U	2.5	"	U		20	U
cis-1,2-Dichloroethene	U	2.1	"	U		20	U
Ethyl Benzene	U	2.3	"	U		20	U
Methylene Chloride	U	1.8	"	U		20	U
o-Xylene	U	2.3	"	U		20	U
Tetrachloroethene (Tetrachloroethylene)	U	3.6	"	U		18.2	U
Toluene	0.37286	2.0	"	0.33795		9.82	20 Q-2, J
trans-1,2-Dichloroethene	U	2.2	"	U		20	U
Trichloroethene (Trichloroethylene)	U	2.8	"	U		20	U
Vinyl chloride	U	1.3	"	U		20	U



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D.A.R.T. Id: 16-0152

Project: 17-0050, Grenada Manufacturing - Reported by Sallie Hale

**Volatile Organics (VOA) - Quality Control**

**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD Limit	Notes
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**Batch 1612083 - V TO-15 Air Canister**

**MRL Verification (1612083-PS1)**

Prepared: 12/16/16 Analyzed: 12/20/16

**EPA TO-15**

(m- and/or p-)Xylene	0.43057		ppbv	0.43459		99.1	52-160	MRL-5
1,1,2-Trichloroethane	0.20515		"	0.21729		94.4	51-162	MRL-5
1,1-Dichloroethene (1,1-Dichloroethylene)	0.22762		"	0.21729		105	50-160	MRL-5
1,2,4-Trimethylbenzene	0.21004		"	0.21729		96.7	46-156	MRL-5
1,2-Dichloroethane	0.25011		"	0.21729		115	51-157	MRL-5
Benzene	0.19765		"	0.21729		91.0	50-160	MRL-5
Chloroform	0.23094		"	0.21729		106	50-161	MRL-5
cis-1,2-Dichloroethene	0.22704		"	0.21729		104	50-156	MRL-5
Ethyl Benzene	0.22636		"	0.21729		104	50-157	MRL-5
Methylene Chloride	0.21658		"	0.21729		99.7	50-162	MRL-5
o-Xylene	0.21601		"	0.21729		99.4	52-156	MRL-5
Tetrachloroethene (Tetrachloroethylene)	0.21055		"	0.21729		96.9	48-168	MRL-5
Toluene	0.20679		"	0.21729		95.2	52-158	MRL-5
trans-1,2-Dichloroethene	0.19200		"	0.21532		89.2	53-156	MRL-5
Trichloroethene (Trichloroethylene)	0.22159		"	0.21729		102	49-157	MRL-5
Vinyl chloride	0.27114		"	0.23705		114	42-171	MRL-5



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**Notes and Definitions for QC Samples**

U	The analyte was not detected at or above the reporting limit.
D-2	Due to Matrix Interference, the sample cannot be accurately quantified. The reported result is estimated.
J	The identification of the analyte is acceptable; the reported value is an estimate.
MRL-5	MRL verification for Air matrix
Q-2	Result greater than MDL but less than MRL.
QC-2	Analyte concentration high in continuing calibration verification standard
QL-2	Laboratory Control Spike Recovery greater than method control limits
QR-2	MRL verification recovery greater than upper control limits.



United States Environmental Protection Agency  
Region 4

Science and Ecosystem Support Division  
980 College Station Road  
Athens, Georgia 30605-2720



**Grenada Manufacturing  
(a.k.a Rockwell International Wheel and Trim)  
Vapor Intrusion Sampling Investigation**

**PROJECT LOCATION:** Grenada, Grenada County, Mississippi  
**PROJECT ID NUMBER:** 17-0050  
**PROJECT LEADER:** Tim Slagle

**Air Sampling Logbook**

Book 1 of 1

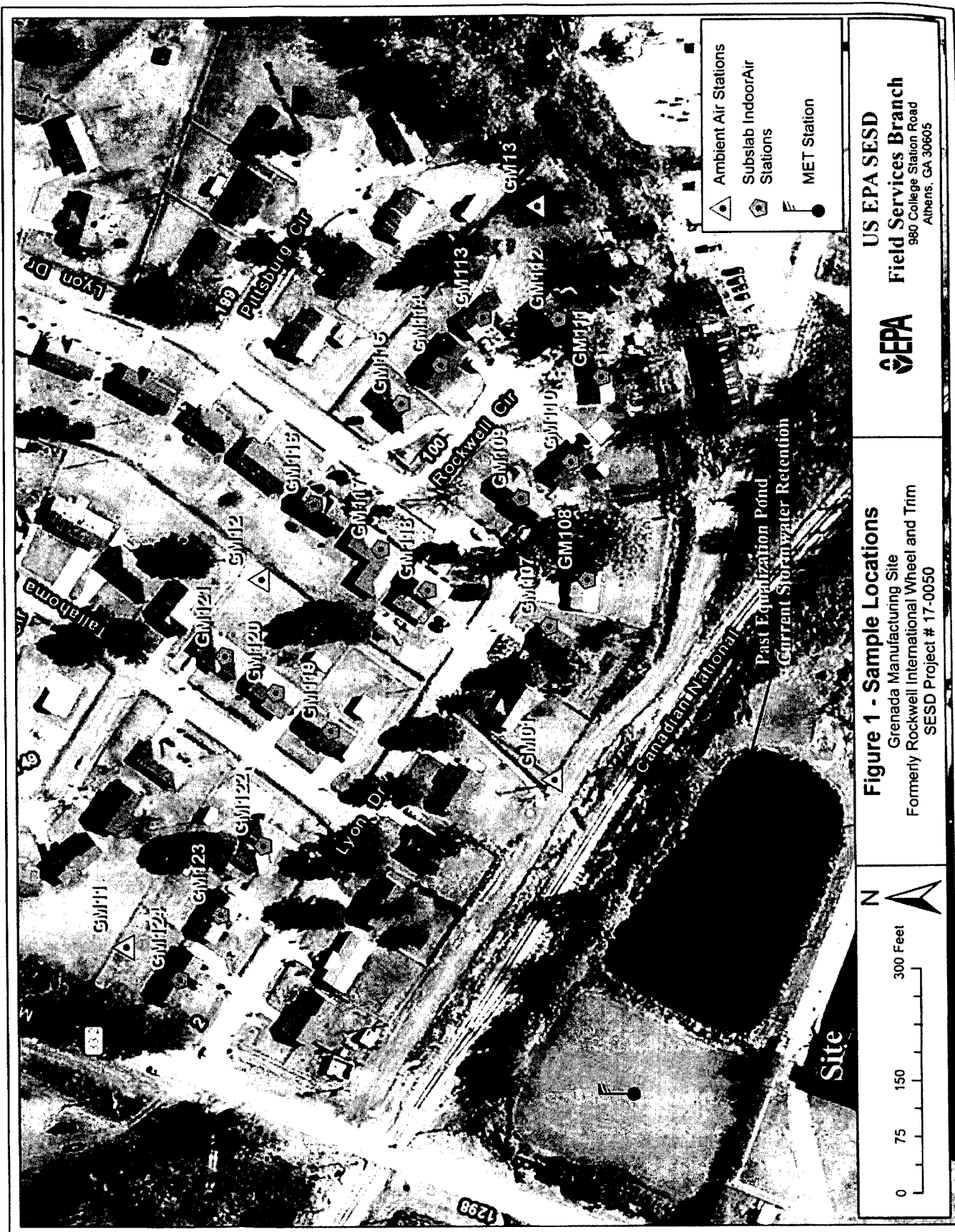
Inclusive Dates: 9/2/21 - 7/18/16

**List of personnel in logbook:**

Name	Initials	Duties
<u>Linda Pruitt</u>	<u>[Signature]</u>	<u>notes, sampler</u>
<u>Tim Slagle</u>	<u>[Signature]</u>	<u>Team Leader</u> <u>Sampler, Project Leader</u>

Team Leader (Initials) [Signature]

Date 12/2/16



Team Leader (Initials) *[Signature]*

Date 12/2/16

TABLE 1 Sample Station Information					
Station ID	Sample ID	Location/Address	Latitude*	Longitude*	Matrix
GM01	GM01AA1116	South ambient air location	33.80506895	-89.80015824	Ambient Air
GM11	GM11AA1116	West ambient air location	33.80636768	-89.80076134	
GM12	GM12AA1116	North ambient air location	33.80595308	-89.79941396	
GM13	GM13AA1116	East ambient air location	33.80511017	-89.79804096	
GM107	GM107SS1116	110 Lyon Drive	33.80507488	-89.79958934	Subslab Soil Gas
	GM107IA0516				Indoor Air
GM108	GM108SS1116	112 Lyon Drive	33.80495638	-89.79941821	Subslab Soil Gas
	GM108IA1116				Indoor Air
GM109	GM109SS1116	114 Lyon Drive	33.80515783	-89.79911873	Subslab Soil Gas
	GM109IA1116				Indoor Air
GM110	GM110SS1116	116 Rockwell Circle	33.80500378	-89.79898326	Subslab Soil Gas
	GM110IA1116				Indoor Air
GM111	GM111SS1116	118 Rockwell Circle	33.80490898	-89.79866952	Subslab Soil Gas
	GM111IA1116				Indoor Air
GM112	GM112SS1116	120 Rockwell Circle	33.80503933	-89.79845561	Subslab Soil Gas
	GM112IA1116				Indoor Air
GM113	GM113SS1116	122 Rockwell Circle	33.8052704	-89.79844848	Subslab Soil Gas
	GM113IA1116				Indoor Air
GM114	GM114SS1116	124 Rockwell Circle	33.80540075	-89.79862674	Subslab Soil Gas
	GM114IA1116				Indoor Air
GM115	GM115SS1116	126 Lyon Drive	33.80551924	-89.79876935	Subslab Soil Gas
	GM115IA1116				Indoor Air
GM116	GM116SS1116	208 Lyon Drive	33.80578586	-89.79914013	Subslab Soil Gas
	GM116IA1116				Indoor Air
GM117	GM117SS1116	210 Lyon Drive	33.80558442	-89.79930412	Subslab Soil Gas
	GM117IA1116				Indoor Air
GM118	GM118SS1116	212 Lyon Drive	33.80544222	-89.79945386	Subslab Soil Gas
	GM118IA1116				Indoor Air
GM119	GM119SS1116	155 Tallahoma Circle	33.80573846	-89.79997438	Subslab Soil Gas
	GM119IA1116				Indoor Air
GM120	GM120SS1116	153 Tallahoma Circle	33.80590436	-89.79983177	Subslab Soil Gas
	GM120IA1116				Indoor Air
GM121	GM121SS1116	151 Tallahoma Drive	33.8060584	-89.7996963	Subslab Soil Gas
	GM121IA1116				Indoor Air
GM122	GM122SS1116	105 Lyon Drive	33.80594583	-89.80039507	Subslab Soil Gas
	GM122IA1116				Indoor Air
GM123	GM123SS1116	103 Lyon Drive	33.80607618	-89.80064464	Subslab Soil Gas
	GM123IA1116				Indoor Air
GM124	GM124SS1116	101 Lyon Drive	33.8062006	-89.80087994	Subslab Soil Gas
	GM124IA1116				Indoor Air
XXXX	XXXXAAD1116	duplicate sample locations to be determined in the field	-	-	Ambient Air
XXXX	XXXXIAD1116		-	-	Indoor Air
XXXX	XXXXIAD1116		-	-	Indoor Air
XXXX	XXXXSSD1116		-	-	Subslab Soil Gas
XXXX	XXXXSSD1116		-	-	Subslab Soil Gas
#R4DART#	GMTBA0516	-	-	-	Trip Blank Air

\* Latitudes and Longitudes for indoor air and sub-slab soil gas samples are recorded for the the center of the house, the samples may not be taken directly at that spot.

Team Leader (Initials)

Date

12/2/16

**General Sampling Methods:**

**Ambient Air** samples will be collected using 6L Summa Canisters with a 24 hour flow controller following EPA Method TO-15 for Volatile Organics collection.

**Sub-Slab Soil Gas** samples will be collected by connecting a 6L Summa Canister to a critical orifice soil gas controller which will be connected via Teflon tubing to a permanent sampling port installed by EPA. The sampling techniques will follow SESD Soil Gas Sampling SOP SESDPROC-307-R3.

**VOC Air Trip Blank**

Station ID: #R4DART#

Sample ID: GMTBA0516-1116

Sample Time: 0710

Sample Date: 11/24/16

Collected by: S. Syle

**Meteorological Station Set-up**

Model Used: P-1000

Start Date and Time: 11/23/16

End Date and Time: 12/2/16

Location: 501 - 1st St. SE

Data Saved Location:

Notes: Can # 20650

Notes:

VOC TB # 2

#R4DART#

GMTBA0516-1116

0740

11/30/16

T. Syle

Can # 3590

VOC TB # 3

#R4DART#

GMTBA0516-1116

0712

12/1/16

T. Syle

Can # 3927

Team Leader (Initials)

Date

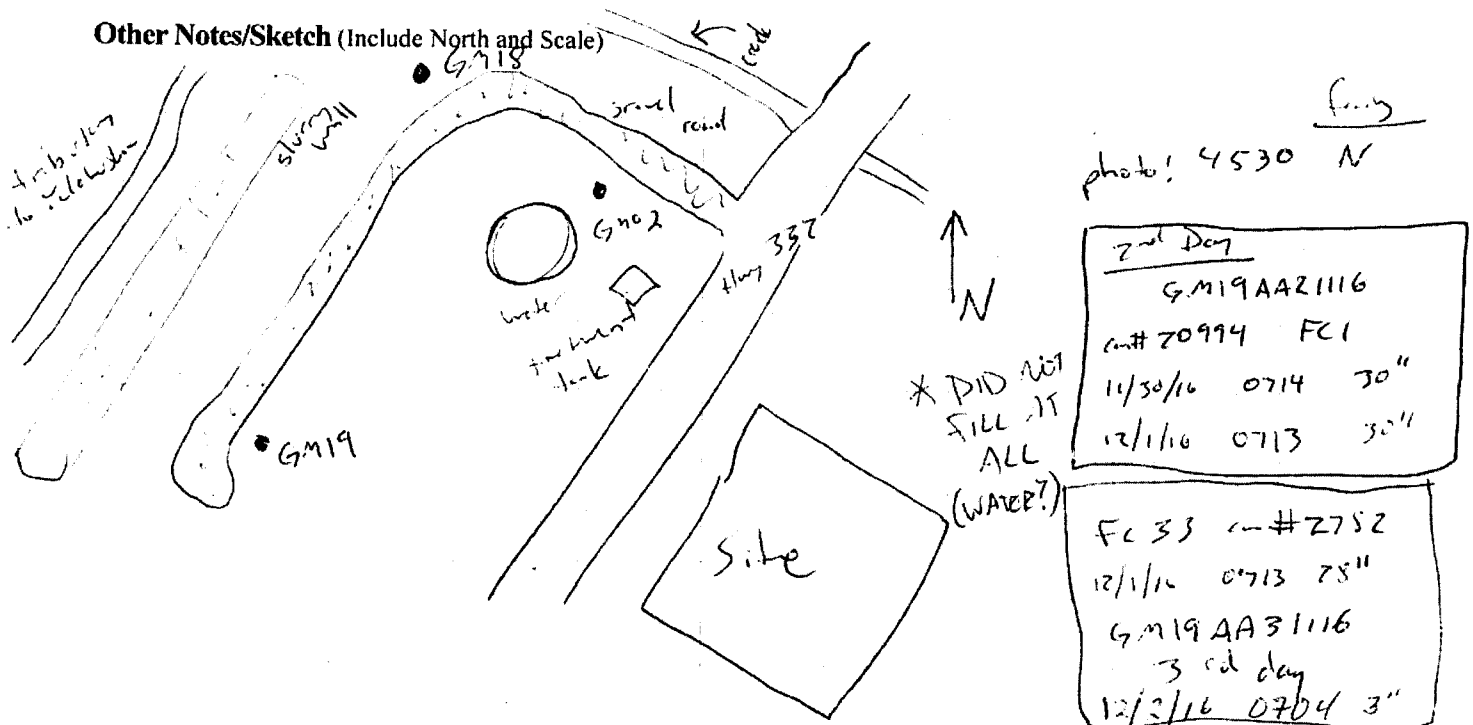
12/2/16

Station I.D. GM19 Sample I.D. GM19AA1116 Date 11/29/16  
<Station ID><media code><Date>GPS Location 33.80430876 -89.80639562Street Address South Landfill new siteSite Description next to gravel road, south end of slurry wallType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth <sup>height</sup> 6' Orifice or Flow Controller # FC1Canister # 20834Name of Person Collecting Sample T. SlayeCan Pressure GaugeStart Date 11/29/16 Start Time 0712 Initial 30"Stop Date 11/30/16 Stop Time 0710 Final 14"

\* lots of wind and rain on 11/29; low pressure system w/ tornadoes nearby

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

Team Leader (Initials) [Signature]Date 12/2/16

Station I.D. G M 18 Sample I.D. G M 18 A A 1116 Date. 11/29/16  
<Station ID><media code><Date>

GPS Location 33.80647398 - 89.20500815

Street Address - North Landfill NW site

Site Description next to gravel road at turn just N of skrey well;  
west of site

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling <sup>Height</sup> Depth 6' Orifice or Flow Controller # FC 2

Canister # 3588

Name of Person Collecting Sample T. Stole

Can Pressure Gauge

Start Date 11/29/16 Start Time 0721 Initial 30"

Stop Date 11/30/16 Stop Time 0718 Final 12"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

See map on pg. 5

photo: 4531 <sup>Facing</sup> E

4532 S

2nd day		
G M 18 A A 21116		
Can # 20970	5CZ	
11/30/16	0720	30" H <sub>2</sub>
12/1/16	0722	30"
12/1/16		

3rd day		
G M 18 A A 31116		
Can # 20654	FC 35	
12/1/16	0725	30"
12/2/16	0711	5"

\* no air flow, filled w/ water? blockage?

Team Leader (Initials) [Signature]

Date 12/2/16

Station I.D. G702 Sample I.D. G702AA1116 Date 11/29/16  
<Station ID><media code><Date>GPS Location -Street Address - Old Water Treatment PlantSite Description h/w gravel road (to slurry wall) and old water treatment tank; west of siteType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling <sup>Depth</sup> 6' Orifice or Flow Controller # FC3Canister # 20987Name of Person Collecting Sample T. StagleCan Pressure GaugeStart Date 11/29/16 Start Time 0728 Initial 30"Stop Date 11/30/16 Stop Time 0725 Final 6"X weather note on pg 5, steel blew over, but still filter fine  
Notes: (other measurements)Other Notes/Sketch (Include North and Scale)see map -- p3 5photo: 9533 E  
4534 E

2nd day G702AA21116 can # 20645 FC3 11/30/16 0728 30" 12/1/16 0732 4"	3rd day G702AA31116 can # 3931 FC3 12/1/16 0735 30" 12/2/16 0717 6"
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Team Leader (Initials) [Signature]Date 12/2/16





Station I.D. G701 Sample I.D. G701AA1116D Date 11/29/16  
<Station ID><media code><Date>GPS Location page 8Street Address —Site Description seepage S, dry locateType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling <sup>Height</sup> Depth 6' Orifice or Flow Controller # FC6Canister # 14673Name of Person Collecting Sample T. StagleCan Pressure GaugeStart Date 11/29/16 Start Time 0744 Initial 30"Stop Date 11/30/16 Stop Time 0735 Final 4"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

3 <sup>rd</sup> day	2 <sup>nd</sup> day
G701AA31116D	G701AA21116D
can # 20783	can # 20789
FC6	FC6
11/1/16 0745 30" H <sub>2</sub> O	11/30/16 0740 30" H <sub>2</sub> O
12/2/16 0724 8" H <sub>2</sub> O	12/1/16 0741 7"

Team Leader (Initials) [Signature]Date 12/2/16

Station I.D. G M 11 Sample I.D. G M 11 A A 1116 Date. 11/29/16  
<Station ID><media code><Date>

GPS Location —

Street Address 101 Lyon Dr.  
101

Site Description in backyard of 101 Lyon Dr.

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling Depth 6' Orifice or Flow Controller # 515  
light

Canister # 6687

Name of Person Collecting Sample T. Slayle

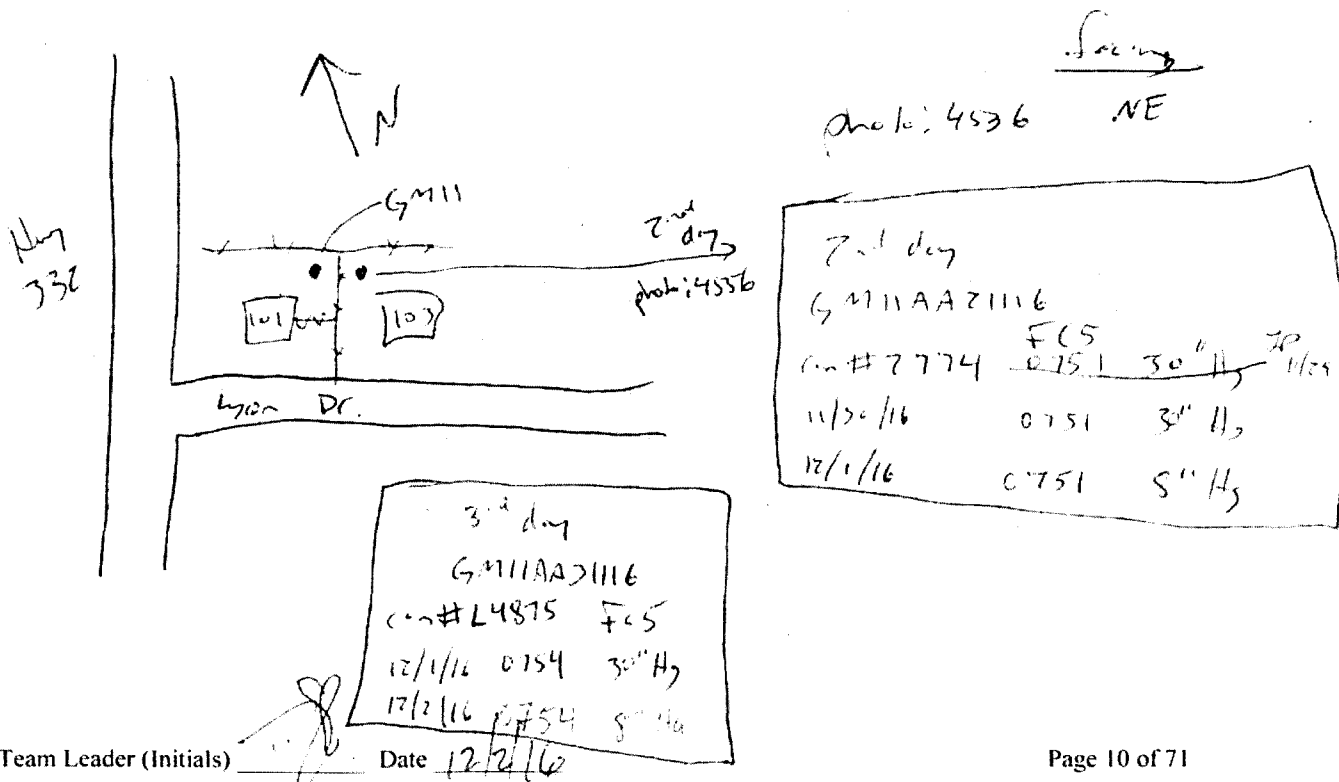
Can Pressure Gauge

Start Date 11/27/16 Start Time 0750 Initial 30"  
21

Stop Date 11/30/16 Stop Time 0749 Final 8"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)



Team Leader (Initials) T. Slayle

Date 12/2/16

Station I.D. G7M12 Sample I.D. G7M12 4A 1116 Date 11/27/16  
<Station ID><media code><Date>GPS Location —Street Address 151 TallehounaSite Description neighborhood ditch behind 151 TallehounaType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth 6' Orifice or Flow Controller # FC13Canister # 4152Name of Person Collecting Sample T. StagleCan Pressure GaugeStart Date 11/29/16 Start Time 0800 Initial 30"Stop Date 11/30/16 Stop Time 0803 Final 5"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

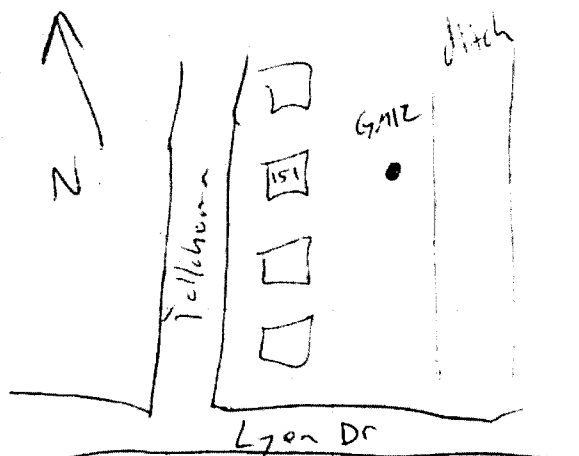


photo: 4537 S feeling

2nd day  
G7M12 4A 21116  
can # 2777 FC13  
11/30/16 0805 29" Hg  
12/1/16 0758 7"

3rd day  
G7M12 4A 31116  
can # 20981 FC13  
12/1/16 0800 30" Hg  
12/2/16 0802 6" Hg

Team Leader (Initials) [Signature]Date 12/2/16

GPS Location \_\_\_\_\_

Street Address \_\_\_\_\_

Site Description behind 170 Eockwell, cul-de-sac

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling Depth <sup>Height</sup> 6' Orifice or Flow Controller # 5C14

Canister # 4477

Name of Person Collecting Sample T. Singh

### Can Pressure Gauge

Start Date 11/27/16 Start Time 0808 Initial 30"

Stop Date 11/30/16 Stop Time 0812 Final 5"

**Notes: (other measurements)**

**Other Notes/Sketch** (Include North and Scale)

2nd day  
G713AAZ1116  
can # 4083 FC14  
11/3-16 0815 30"  
12/1/16 0806 4"

Photo: Feb 15  
4538 W

Team Leader (Initials)

Date 12/2/16

Station I.D. G.M115 Sample I.D. G.M115SS1116 Date 11/29/16  
<Station ID><media code><Date>GPS Location -Street Address 126 Lyan Dr.Site Description map middle of home, same location 5/2016, 16-0323Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth 6" Orifice or Flow Controller # SGC 1Canister # 20977Name of Person Collecting Sample T. StagleStart Date 11/29/16 Start Time 1549 Initial 30" Hg  
Stop Date 11/30/16 Stop Time 1623 Final 2"  
12/01/16

Can Pressure Gauge

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

see  
map 16-0323 Logbook 1

photo: 4570

- soil below slab was wet  
would pull w/ the  
best pump @ 800

He took test! shroud: 90+ %

test: 9.32

Team Leader (Initials) [Signature]Date 12/2/16

Station I.D. GM11X <sup>5 2/14/16</sup> Sample I.D. GM115IA1116 <sup>2 11/27</sup> <sup>30 11/27</sup> Date 11/27/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address 126 Gen Dr.

Site Description closet h. ll of house

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling <sup>Height</sup> ~~Depth~~ 3' Orifice or Flow Controller # FC15

Canister # 20646

Name of Person Collecting Sample T. Slagle

Can Pressure Gauge

Start Date 11/30/16 Start Time 1636 Initial 29"

Stop Date 12/1/16 Stop Time 1659 Final 6"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

map  
see  
p213

photo: 4571

\* Atlas dup'd this  
location (started @ ~10am  
on 11/26)

Team Leader (Initials) [Signature]

Date 12/2/16

Station I.D. Gm111 Sample I.D. Gm111551116 Date. 11/27/16  
<Station ID><media code><Date>GPS Location —Street Address 118 Portwell CirSite Description in closet of home  
(hall)Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth 6" Orifice or Flow Controller # SGC 2Canister # 20819Name of Person Collecting Sample T. SlayeCan Pressure GaugeStart Date 11/24/16 Start Time 0943 Initial 25"Stop Date 11/27/16 Stop Time 1009 Final 0"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

Follow up  
project 16-0323  
logbook 1

the leak test  
showed: 90+ %  
test: 4000 ppm

photo: 4539

Team Leader (Initials) [Signature]Date 12/2/16

Station I.D. Gm111 Sample I.D. Gm111IA1116 Date. 11/29/16  
<Station ID><media code><Date>

GPS Location -

Street Address 118 Rockwell

Site Description pg 16

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling <sup>Height</sup> 3' Depth 3' Orifice or Flow Controller # FC16

Canister # 20990

Name of Person Collecting Sample T. Slaye

Can Pressure Gauge

Start Date 11/29/16 Start Time 1022 Initial -30"

Stop Date 11/30/16 Stop Time 1018 Final 7"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

see page 16

photo: 4540

Team Leader (Initials) [Signature]

Date 12/2/16



Station I.D. G7114 Sample I.D. G7114SS1116 Date 11/29/16  
<Station ID><media code><Date>

GPS Location -

Street Address 124 Rockwell Cr.

Site Description back room @ door; directly in file

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling Depth 6" Orifice or Flow Controller # SGC 3

Canister # 20644

Name of Person Collecting Sample T. Staley

Can Pressure Gauge

Start Date 11/29/16 Start Time 1030 Initial 28"

Stop Date 11/29/16 Stop Time 1050 Final 1"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

mp 16-0723 logbook 1

photo: 4541

He took test  
shroud: 90+ %  
test: 0 rem

Team Leader (Initials) [Signature]

Date

12/2/16

Station I.D. G.M.114 Sample I.D. G.M.114 IA 1116 Date 11/29/16  
<Station ID><media code><Date>GPS Location —Street Address 124 Rockwell CirSite Description in kitchen table, see map belowType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth Height 3' Orifice or Flow Controller # FC 17Canister # 4670Name of Person Collecting Sample T. SlayeCan Pressure GaugeStart Date 11/29/16 Start Time 1104 Initial 28"Stop Date 11/30/16 Stop Time 1109 Final 5"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

see in 16-0323  
logbook 1

photo: 4542  
4543

\* Atlas (dup)  
split this  
sample

Team Leader (Initials) [Signature]Date 12/2/16

Station I.D. GM107 Sample I.D. GM107SS1116 Date. 11/29/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address 110 Lye Dr.Site Description dozer end of hillType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth 6" Orifice or Flow Controller # SGC 7Canister # 20657Name of Person Collecting Sample T. StagleCan Pressure GaugeStart Date 11/29/16 Start Time 1118 Initial 28" H<sub>2</sub>Stop Date 11/29/16 Stop Time 1149 Final 1" H<sub>2</sub>

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

see map project  
16-0323 logbookHe leak test  
shroud: 90+2  
test: 100 rem

photo: 4544

Split

GM107SS1116S

Start 1118 28" H<sub>2</sub>Stop 1149 1" H<sub>2</sub>FC = SGC 8  
Can # 20658Team Leader (Initials) JS

Date

12/2/14

Station I.D. Gm107 Sample I.D. Gm107IA1116 Date 11/27/16  
<Station ID><media code><Date>GPS Location —Street Address 110 Lyon Dr.Site Description in hallwayType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling <sup>Height</sup> Depth 3' Orifice or Flow Controller # FC 25Canister # 3977Name of Person Collecting Sample T. SledgeCan Pressure GaugeStart Date 11/27/16 Start Time 1200 Initial 28"Stop Date 11/30/16 Stop Time 1200 Final 5"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

see  
PJ.19  
location info

photo 14545

Duplicate  
Gm107IA1116D  
Start = 1200 28" Hg  
Stop = 1200 5"  
FC = FC 24  
Canister = 4340Team Leader (Initials) [Signature]

Date

12/2/16

Station I.D. GM110 Sample I.D. GM110551116 Date 11/29/16  
<Station ID><media code><Date>GPS Location -Street Address 116 Peckwell Cir.Site Description just inside back room on leftType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth 6" Orifice or Flow Controller # SGC 4Canister # 2276Name of Person Collecting Sample T. StagleCan Pressure GaugeStart Date 11/29/16 Start Time 1342 Initial 30"Stop Date 11/29/16 Stop Time 1415 Final 2.5"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

see map  
16-0323  
bybook 1

photo: 4546

He Shrad bit  
shrad: 90+ %  
test: OpenTeam Leader (Initials) ELDate 12/2/14

Station I.D. GM110 Sample I.D. GM110 IA1116 Date. 11/29/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address 116 Rockwell Cir.Site Description living roomType of sample: Ambient Air Sample ☒ Indoor Air Sample ☐ Soil Gas Sample ☐Sampling Depth <sup>height</sup> 6' Orifice or Flow Controller # FC 18Canister # 14675Name of Person Collecting Sample J. StagleCan Pressure GaugeStart Date 11/29/16 Start Time 1427 Initial 30"Stop Date 11/30/16 Stop Time 1443 Final 4"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

location map  
see p 21

photo: 4547

Team Leader (Initials) [Signature]Date 12/2/16

Station I.D. GMI12 Sample I.D. GMI12SS1116 Date 11/29/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address 120 Rockwell CirSite Description middle bedroom closetType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth 6" Orifice or Flow Controller # SGC 5Canister # 20991Name of Person Collecting Sample T. SkyleCan Pressure GaugeStart Date 11/29/16 Start Time 1412 Initial 28"Stop Date 11/29/16 Stop Time 1443 Final 0"

Notes: (other measurements) \_\_\_\_\_

Other Notes/Sketch (Include North and Scale)

house  
map in  
16-0323  
logbook 1

photo: 4548

He test  
shrad: 90+ %  
test: 0 ppmTeam Leader (Initials) [Signature]Date 12/2/16





Station I.D. Gm113 Sample I.D. Gm113SS1116 Date. 11/29/16  
<Station ID><media code><Date>GPS Location —Street Address 122 Rockwell CtSite Description closed, end of hallwayType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth 6" Orifice or Flow Controller # SGC 6Canister # 4506Name of Person Collecting Sample T. Slay

Start Date 11/27/16 Start Time 1515 Can Pressure Gauge Initial 28"  
Stop Date 11/27/16 Stop Time 1547 Final 0"  
*pull air 1547*

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

mp see  
16-0323  
logbook 1

photo: 4550  
4950  
2P 11/29

We leak testshroud: 90+%test: too tight formation

to pull air 2P 11/29  
through long box used  
syringe to pull  
0 ppm

Team Leader (Initials) [Signature]Date 12/2/16

Station I.D. G7121 Sample I.D. G7121SS1116 Date 11/29/16  
<Station ID><media code><Date>

GPS Location —

Street Address 151 Tallahome

Site Description back right room just inside door on left

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling Depth 6" Orifice or Flow Controller # SGC9

Canister # 20982

Name of Person Collecting Sample T. Slagle

Can Pressure Gauge

Start Date 11/29/16 Start Time 1605 Initial 28.5"

Stop Date 11/29/16 Stop Time 1638 Final 1"

Notes: (other measurements)

**Other Notes/Sketch** (Include North and Scale)

seen map  
in 16-0323  
logbook 1

photo: 4552

We leak test  
shroud: 90%  
test: 0 ppm

Team Leader (Initials) AS

Date 12/2/16

Page 27 of 71

Station I.D. GM113 Sample I.D. GM113JA1116 Date. 11/29/16  
<Station ID><media code><Date>GPS Location —Street Address 122 Rockwell Cir.Site Description living room, coffee tableType of sample: Ambient Air Sample ☒ Indoor Air Sample ☐ Soil Gas SampleSampling <sup>Height</sup> Depth 3' Orifice or Flow Controller # FC 20Canister # 3938Name of Person Collecting Sample T. SkyleCan Pressure GaugeStart Date 11/29/16 Start Time 1600 Initial 30"Stop Date 11/30/16 Stop Time 1600 Final 5"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

location  
see page 25

photo: 4551

Atlas sp. 20 11/29  
dup. this  
location. 45 started  
early ~1515Team Leader (Initials) J

Date

12/2/16

Station I.D. GM109 Sample I.D. GM109 SS 1116 Date 11/29/16  
<Station ID><media code><Date>GPS Location —Street Address 114 Lyon Dr.Site Description back left room, just inside door thresholdType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth 6" Orifice or Flow Controller # SGC10Canister # 2771Name of Person Collecting Sample T. StigleCan Pressure GaugeStart Date 11/22/16 Start Time 1644 Initial 29"Stop Date 11/29/16 Stop Time 1715 Final 0"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

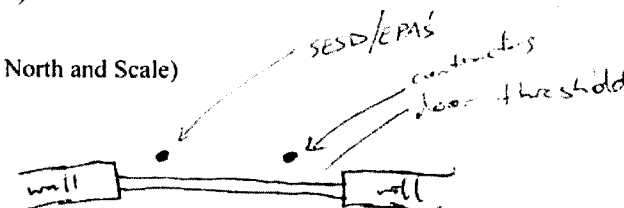
map # 16-0323  
logbook 1

photo: 4554

\* occupant smoking

1hr leak test  
shroud: 88%  
test: 100 ppmTeam Leader (Initials) [Signature]

Date

12/2/16



Station I.D. G7119 Sample I.D. G7119 SS 1116 Date 11/30/16  
<Station ID><media code><Date>GPS Location -Street Address 155 TallahomaySite Description in closet (grout corner in tile) at end of hallType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth 6" Orifice or Flow Controller # SGC 11Canister # 4081Name of Person Collecting Sample J. SkyleCan Pressure GaugeStart Date 11/30/16 Start Time 0904 Initial 27"Stop Date 11/30/16 Stop Time 0936 Final 0"\* this site is drilled temp' sample port everytime  
Notes: (other measurements)**Other Notes/Sketch** (Include North and Scale)map in  
16-0323  
logbook 1photo! 4557He leak test  
showed: 90+2  
test: 0 ppmTeam Leader (Initials) C. J.Date 12/2/16

Station I.D. G7119 Sample I.D. G7119IA116 Date 11/30/16  
<Station ID><media code><Date>GPS Location —Street Address 155 TallchomaSite Description at beginning of highwayType of sample: Ambient Air Sample ☒ Indoor Air Sample ☐ Soil Gas SampleSampling <sup>Height</sup> Depth 3' Orifice or Flow Controller # SC23Canister # 6681Name of Person Collecting Sample T. SkyleCan Pressure GaugeStart Date 11/30/16 Start Time 1014 Initial 30"Stop Date 12/1/16 Stop Time 1018 Final 5"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

see pg. 31  
location info

photo: 4558

Team Leader (Initials) ASDate 12/2/16



Station I.D. G M116 Sample I.D. G M116 SS 1116 Date 11/30/16  
<Station ID><media code><Date>GPS Location —Street Address 208 Lya. Dr.Site Description just inside left bedroom door, under carpet (temp port)Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth 6" Orifice or Flow Controller # SGC 12Canister # 5935Name of Person Collecting Sample T. SyleCan Pressure GaugeStart Date 11/30/16 Start Time 0957 Initial 27" H<sub>2</sub>Stop Date 11/30/16 Stop Time 1026 Final 2"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

\* had rebar twice, 3<sup>rd</sup>  
hole successful

photo: 4560

He leak test  
shroud: 85+ %  
test: 0 ppm

Team Leader (Initials) ASDate 12/2/16

Station I.D. G7116 Sample I.D. G7116 IA116 Date 11/30/16  
<Station ID><media code><Date>

GPS Location                     

Street Address 208 Gen Dr.

Site Description on bar top b/w kitchen & living room

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling <sup>Height</sup> 4' Orifice or Flow Controller # FL 26

Canister # 6678

Name of Person Collecting Sample T. Skyle

Can Pressure Gauge

Start Date 11/30/16 Start Time 1057 Initial 30" Hg

Stop Date 12/1/16 Stop Time 1057 Final 5"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

see p. 33  
for location  
info

photo: 4559

Team Leader (Initials)                     

Date 12/2/16

Station I.D. G7108 Sample I.D. G7108 SS1116 Date 11/30/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address 112 LyonSite Description in closet at end of hallType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth 6" Orifice or Flow Controller # SSC14Canister # 471Name of Person Collecting Sample T. StageCan Pressure GaugeStart Date 11/30/16 Start Time 1038 Initial 29"Stop Date 11/30/16 Stop Time 1125 Final 1"

Notes: (other measurements) \_\_\_\_\_

Other Notes/Sketch (Include North and Scale)

mg on 16-0323  
logbook 1

photo: 4561

He test  
strand = 90+<sup>90</sup><sub>20</sub>  
test = OpenTeam Leader (Initials) [Signature]Date 12/2/16



Station I.D. GM127 Sample I.D. GM127SS1116 Date. 11/30/16  
<Station ID><media code><Date>

GPS Location -

Street Address 105 Lyon

Site Description In closet of back/right bathroom

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling Depth 6" Orifice or Flow Controller # SGC15

Canister # 20980

Name of Person Collecting Sample T. Syle

Can Pressure Gauge

Start Date 11/30/16 Start Time 1141 Initial 27"

Stop Date 11/30/16 Stop Time 1221 Final 1"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

see  
map from  
16-0323  
logbook 1

He test  
shroud : 90+ %  
test : 0 ppm

photo: 4563

Team Leader (Initials) [Signature]

Date 12/2/16

Station I.D. GM122 Sample I.D. GM122 IA 1116 Date 11/30/16  
<Station ID><media code><Date>

GPS Location                     

Street Address 105 Lyon Dr.

Site Description in hallway b/w rooms

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling <sup>Height</sup> Depth 3' Orifice or Flow Controller # FC28

Canister # 20648

Name of Person Collecting Sample T. Slye

Can Pressure Gauge

Start Date 11/30/16 Start Time 1232 Initial 29"

Stop Date 12/1/16 Stop Time 1232 Final 7"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

\* moved IA sample across hallway  
 from my location b/c  
 space heater is now  
 in use

photo: 4564 old location  
 4565 new "

\* Atlas dup'd this  
 location

Team Leader (Initials) [Signature] Date 12/2/16

Station I.D. G7118 Sample I.D. G7118 SS116 Date. 11/30/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address 212 Lyon Dr.Site Description in hallway closetType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth 6" Orifice or Flow Controller # SGC 16Canister # 4560Name of Person Collecting Sample T. SlaybeCan Pressure GaugeStart Date 11/30/16 Start Time 1352 Initial 28"Stop Date 11/30/16 Stop Time 1433 Final 0"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

img in 16-0323  
logbook 1He leak test  
shroud: 90+ %  
test: 3100 ppm

photo: 4566

Team Leader (Initials) [Signature]

Date

12/2/16

Station I.D. GM118 Sample I.D. GM118 JA1116 Date 11/30/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address 212 Lyon Dr.

Site Description corner b/w front living room and kitchen

Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas Sample

Sampling Depth <sup>Height</sup> 3' Orifice or Flow Controller # FC29

Canister # 20986

Name of Person Collecting Sample T. Skyle

Can Pressure Gauge

Start Date 11/30/16 Start Time 1445 Initial 29"

Stop Date 12/1/16 Stop Time 1446 Final 4"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

see pg 39  
for location  
info

photo: 4567

Team Leader (Initials) [Signature]

Date 12/2/16



Station I.D. GM117 Sample I.D. GM117SS1116 Date 11/30/16  
<Station ID><media code><Date>GPS Location —Street Address 210 Lyon Dr.Site Description just inside threshold of back left bedroomType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth 6" Orifice or Flow Controller # SGC23Canister # 5927Name of Person Collecting Sample T. SyleCan Pressure GaugeStart Date 11/30/16 Start Time 1437 Initial 30"Stop Date 11/30/16 Stop Time 1509 Final 2"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

map in 16-0323  
logbook 1He leak  
shroud;  
test;Split  
GM117SS1116 S  
start: 11/30/16 1437 30"  
SGC21 can # 3910  
stop: 11/30/16 1509 1"

photo: 4568

Team Leader (Initials) [Signature]

Date

12/2/16



Station I.D. Gm117 Sample I.D. Gm117JA1116 Date 11/30/16  
<Station ID><media code><Date>GPS Location -Street Address 210 Lyon Dr.Site Description kitchen table in middle of houseType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling ~~Depth~~ <sup>Height</sup> 4' Orifice or Flow Controller # FC31Canister # 20652Name of Person Collecting Sample T. StagleStart Date 11/30/16 Start Time 1522 Initial 30"  
Can Pressure GaugeStop Date 12/1/16 Stop Time 1522 Final 5"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

see page 41  
for location  
info

photo: 4569

dup  
Gm117JA1116D  
can # 20649 FC34  
11/30/16 1522 30"  
12/1/16 1522 5"

Station I.D. GM120 Sample I.D. GM120SS1116 Date 11/30/16  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address 153 TallahomaSite Description under linoleum tile, threshold of back left  
roomType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth 6" Orifice or Flow Controller # SGC 17Canister # 20973Name of Person Collecting Sample T. StagleCan Pressure GaugeStart Date 11/30/16 Start Time 1630 Initial 28"Stop Date 11/30/16 Stop Time 1711 Final 1"

Notes: (other measurements) \_\_\_\_\_

Other Notes/Sketch (Include North and Scale)

map on  
16-0323 10/20/16

photo: 4572

like test leak  
shroud: 90+ %  
test: 0 ppmTeam Leader (Initials) SLDate 12/2/16



Station I.D. GM120 Sample I.D. GM120IA1116 Date 11/30/16  
<Station ID><media code><Date>GPS Location —Street Address 153 TallahomaSite Description —Type of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling <sup>Height</sup> Depth 3' Orifice or Flow Controller # FC32Canister # 20975Name of Person Collecting Sample T. SlayleCan Pressure GaugeStart Date 11/30/16 Start Time 1723 Initial 30" HgStop Date 12/1/16 Stop Time 1721 Final 5"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

location info  
on p. 43

photo: 4573

Team Leader (Initials) [Signature]Date 12/2/16



Station I.D. G.M123 Sample I.D. G.M123SS1116 Date 12/1/16  
<Station ID><media code><Date>GPS Location —Street Address 103 Lyon Dr.Site Description in desert at end of hallwayType of sample: Ambient Air Sample Indoor Air Sample Soil Gas SampleSampling Depth 6" Orifice or Flow Controller # SGC18Canister # 29 2773Name of Person Collecting Sample T. SlayeCan Pressure GaugeStart Date 12/1/16 Start Time 0838 Initial 29" H<sub>2</sub>Stop Date 12/1/16 Stop Time 0922 Final 0"

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

map in 16-0323  
logbook 1He leak test  
shroud: 90+ %  
test: 0 ppm

photo: 4574

Team Leader (Initials) [Signature]

Date

12/2/16





Station I.D. G4123 Sample I.D. G4123 IA 1116 Date 12/1/16  
<Station ID><media code><Date>GPS Location —Street Address 103 Lyon Dr.Site Description on bar b/w living & dining roomType of sample: Ambient Air Sample ☒ Indoor Air Sample ☐ Soil Gas Sample ☐Sampling <sup>Height</sup> Depth 4' Orifice or Flow Controller # TC 36Canister # 20656Name of Person Collecting Sample T. SlagleCan Pressure GaugeStart Date 12/1/16 Start Time 0937 Initial 30" HgStop Date 12/2/16 Stop Time 0937 Final 5" Hg

Notes: (other measurements)

Other Notes/Sketch (Include North and Scale)

see page 45

for location  
info

photo: 4575

Team Leader (Initials) [Signature]Date 12/2/16



Station I.D. \_\_\_\_\_ Sample I.D. \_\_\_\_\_ Date. \_\_\_\_\_  
<Station ID><media code><Date>

GPS Location \_\_\_\_\_

Street Address \_\_\_\_\_

Site Description \_\_\_\_\_

Type of sample:      Ambient Air Sample      Indoor Air Sample      Soil Gas Sample

Sampling Depth \_\_\_\_\_ Orifice or Flow Controller # \_\_\_\_\_

Canister # \_\_\_\_\_

Name of Person Collecting Sample \_\_\_\_\_

Start Date \_\_\_\_\_ Start Time \_\_\_\_\_ Initial \_\_\_\_\_

Stop Date \_\_\_\_\_ Stop Time \_\_\_\_\_ Final \_\_\_\_\_

Notes: (other measurements) \_\_\_\_\_

Other Notes/Sketch (Include North and Scale)

Team Leader (Initials) \_\_\_\_\_

Date

12/2/16



E165002

## USEPA Region 4 COC (REGION COPY)

Date Shipped: 12/2/2016

Carrier Name: GOV Carrier

Airbill No: n/a

## CHAIN OF CUSTODY RECORD

Grenada Manufacturing

Project Number: 17-0050

Cooler #: n/a

No: 12/01/16-0001

Lab: Region 4 Lab

Lab Contact: Mike Beall

Lab Phone: 706-355-8856

Sample Identifier	CLP Sample No.	Media/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	Sample Type
GM01AA1116D		Ambient Air/ Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM01	11/29/2016 07:44	Field Sample
GM01AA21116D		Ambient Air/ Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM01	11/30/2016 07:40	Field Sample
GM01AA31116D		Ambient Air/ Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM01	12/01/2016 07:45	Field Sample
GM107IA1116D		Indoor Air/ Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM107	11/29/2016 12:00	Field Duplicate
GM107SS1116S		Soil Gas/ Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM107	11/29/2016 11:18	Field Duplicate
GM117IA1116D		Indoor Air/ Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM117	11/30/2016 15:22	Field Sample
GM117SS1116S		Soil Gas/ Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM117	11/30/2016 14:37	Field Sample
GMTBB1116		Trip Blank Air/ Slagle, Tim	Comp.	VOA	A (None) (1) ✓	#R4DART#	11/30/2016 07:40	Trip Blank
GMTBC1116		Trip Blank Air/ Slagle, Tim	Comp.	VOA	A (None) (1) ✓	#R4DART#	12/01/2016 07:12	Trip Blank
GM01AA1116		Ambient Air/ Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM01	11/29/2016 07:44	Field Sample

Special Instructions: Can #s: GMTBA1116=20850, GMTBB1116=3590, GMTBC1116=3927, GM19AA1116=20834, GM19AA21116=20994, GM19AA31116=2782, GM18AA1116=3588, GM18AA21116=20970, GM18AA31116=20854, GM02AA1116=20987, GM02AA21116=20645, GM02AA31116=3931, GM01AA1116=20976, GM01AA21116=20978, GM01AA31116=20983, GM01AA1116D=14673, GM01AA21116D=20988, GM01AA31116D=20653, GM11AA1116=6687, GM11AA21116=2774, GM11AA31116=14875, GM12AA1116=20981, GM12AA21116=20977, GM12AA31116=20981, GM13AA1116=4477, GM13AA21116=4083, GM13AA31116=20847, GM15SS1116=20977, GM15IA1116=20846, GM11SS1116=20819, GM11IA1116=20990, GM11IA21116=3977, GM107IA1116=4340, GM10SS1116=2776, GM10IA1116=14675, GM107SS1116=20658, GM107IA1116=3977, GM107IA1116D=4340, GM10SS1116=2776, GM10IA1116=14675, GM112SS1116=20991, GM112IA1116=4419, GM113SS1116=4506, GM113IA1116=3938, GM121SS1116=20882, GM121IA1116=4394, GM109SS1116=2771, GM109IA1116=20651, GM119SS1116=4081, GM119IA1116=6691, GM118SS1116=5935, GM116IA1116=6678, GM108SS1116=471, GM108IA1116=3728, GM122SS1116=20980, GM122IA1116=20848, GM118SS1116=4580, GM118IA1116=20986, GM117SS1116=5927, GM117SS1116S=8910, GM117IA1116=20852, GM117IA1116D=20649, GM120SS1116=20973, GM120IA1116=20975, GM123SS1116=2773, GM123IA1116=20856

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #

Analysis Key: VOA=(VOA) Volatile Organics

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
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65  
12/5/16 10:23  
12/5/16 10:30

GM Beall EPA 5ESS ASB

Good



## USEPA Region 4 COC (REGION COPY)

Date Shipped: 12/2/2016

Carrier Name: GOV Carrier

Airbill No: n/a

## CHAIN OF CUSTODY RECORD

Grenada Manufacturing

Project Number: 17-0050

Cooler #: n/a

No: 12/01/16-0001

Lab: Region 4 Lab

Lab Contact: Mike Beall

Lab Phone: 706-355-8856

Sample Identifier	CLP Sample No.	Media/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	Sample Type
GM01AA21116		Ambient Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM01	11/30/2016 07:40	Field Sample
GM01AA31116		Ambient Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM01	12/01/2016 07:45	Field Sample
GM02AA11116		Ambient Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM02	11/29/2016 07:28	Field Sample
GM02AA21116		Ambient Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM02	11/30/2016 07:28	Field Sample
GM02AA31116		Ambient Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM02	12/01/2016 07:35	Field Sample
GM107IA1116		Indoor Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM107	11/29/2016 12:00	Field Sample
GM107SS1116		Soil Gas/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM107	11/29/2016 11:18	Field Sample
GM108IA1116		Indoor Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM108	11/30/2016 11:37	Field Sample
GM108SS1116		Soil Gas/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM108	11/30/2016 10:38	Field Sample
GM109IA1116		Indoor Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM109	11/29/2016 17:25	Field Sample

Special Instructions: Can #s: GM1TBA1116=20850, GM1TBB1116=3590, GM1TBC1116=3927, GM19AA1116=20834, GM19AA21116=20994, GM19AA31116=2782, GM18AA1116=3588, GM18AA21116=20970, GM18AA31116=20854, GM12AA1116=20987, GM12AA21116=20845, GM12AA31116=3931, GM10AA1116=20976, GM10AA21116=20978, GM10AA31116=20983, GM10AA1116D=14673, GM10AA21116D=20989, GM10AA31116D=20653, GM11AA1116=6687, GM11AA21116=2774, GM11AA31116=L4875, GM12AA1116=4152, GM12AA21116=2777, GM12AA31116=20981, GM13AA1116=4477, GM13AA21116=4083, GM13AA31116=20647, GM115SS1116=20977, GM115IA1116=20846, GM111SS1116=20819, GM111IA1116=20990, GM111IA1116=20644, GM114IA1116=4670, GM107SS1116=20657, GM107SS1116S=20658, GM107IA1116=3977, GM107IA1116D=4340, GM110SS1116=2776, GM110IA1116=14675, GM112SS1116=20991, GM112IA1116=4419, GM113SS1116=4506, GM113IA1116=3938, GM121SS1116=20982, GM121IA1116=4394, GM109SS1116=2771, GM109IA1116=20951, GM119SS1116=4081, GM119IA1116=6681, GM116SS1116=5935, GM116IA1116=6678, GM108SS1116=471, GM108IA1116=39728, GM122SS1116=20980, GM122IA1116=20848, GM118SS1116=4580, GM118IA1116=20986, GM117SS1116=5927, GM117SS1116S=3910, GM117IA1116=20852, GM117IA1116D=20649, GM120SS1116=20973, GM120IA1116=20975, GM123SS1116=2773, GM123IA1116=20856

Analysis Key: VOA=(VOA) Volatile Organics

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
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60 *[Signature]* 12/5/16 10:23 EPA SEED ASB 12/5/16 10:30 Good

*[Signature]*





E165002

USEPA Region 4 COC (REGION COPY)

No: 12/01/16-0001  
Lab: Region 4 Lab  
Lab Contact: Mike Beall  
Lab Phone: 706-355-8856

CHAIN OF CUSTODY RECORD  
Grenada Manufacturing  
Project Number: 17-0050  
Cooler #: n/a

Sample Identifier	CLP Sample No.	Media/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	Sample Type
GM109SS1116		Soil Gas/Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM109	11/29/2016 16:44	Field Sample
GM110IA1116		Indoor Air/Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM110	11/29/2016 14:27	Field Sample
GM110SS1116		Soil Gas/Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM110	11/29/2016 13:42	Field Sample
GM111IA1116		Indoor Air/Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM111	11/29/2016 10:22	Field Sample
GM111SS1116		Soil Gas/Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM111	11/29/2016 09:43	Field Sample
GM112IA1116		Indoor Air/Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM112	11/29/2016 14:53	Field Sample
GM112SS1116		Soil Gas/Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM112	11/29/2016 14:12	Field Sample
GM113IA1116		Indoor Air/Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM113	11/29/2016 16:00	Field Sample
GM113SS1116		Soil Gas/Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM113	11/29/2016 15:15	Field Sample
GM114IA1116		Indoor Air/Slagle, Tim	Comp.	VOA	A (None) (1) ✓	GM114	11/29/2016 11:04	Field Sample

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Special Instructions: Can #s: GMTBA1116=20850, GMTBB1116=3590, GMTBC1116=3927, GM19AA1116=20834, GM19AA21116=20894, GM19AA31116=2782, GM18AA1116=3588, GM18AA21116=20970, GM18AA31116=20854, GM02AA1116=20987, GM02AA21116=20645, GM02AA31116=3931, GM01AA1116=20976, GM01AA21116=20978, GM01AA31116=20983, GM01AA1116D=14673, GM01AA21116D=20989, GM01AA31116D=20853, GM11AA1116=6887, GM11AA21116=2774, GM11AA31116=14675, GM12AA1116=4152, GM12AA21116=2777, GM12AA31116=20981, GM13AA1116=4477, GM13AA21116=4083, GM13AA31116=20847, GM15SS1116=20977, GM15IA1116=20646, GM11SS1116=20819, GM11IA1116=20990, GM11SS1116=20644, GM11IA1116=4670, GM107SS1116=20657, GM107SS1116S=20858, GM107IA1116=3977, GM107IA1116D=4340, GM110SS1116=2776, GM110IA1116=14675, GM12SS1116=20991, GM12IA1116=4419, GM11SS1116=4506, GM113IA1116=3938, GM121SS1116=20982, GM12IA1116=4394, GM109SS1116=2771, GM109IA1116=20651, GM119SS1116=4081, GM119IA1116=6681, GM16SS1116=5935, GM16IA1116=6678, GM108SS1116=471, GM108IA1116=03728, GM122SS1116=20980, GM122IA1116=20848, GM118SS1116=4560, GM118IA1116=20986, GM117SS1116=5927, GM117SS1116S=3910, GM117IA1116=20852, GM117IA1116D=20649, GM120SS1116=20973, GM120IA1116=20975, GM123SS1116=2773, GM123IA1116=20656				Shipment for Case Complete? Y			
Analysis Key: VOA=(VOA) Volatile Organics				Samples Transferred From Chain of Custody #			

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
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65 *[Signature]* 12/5/16 10:23 *[Signature]* EPA SED ASD 12/5/16 1030 *[Signature]* Good



## USEPA Region 4 COC (REGION COPY)

Date Shipped: 12/2/2016

Carrier Name: GOV Carrier

Airbill No: n/a

## CHAIN OF CUSTODY RECORD

Grenada Manufacturing

Project Number: 17-0050

Cooler #: n/a

No: 12/01/16-0001

Lab: Region 4 Lab

Lab Contact: Mike Beall

Lab Phone: 706-355-8856

Sample Identifier	CLP Sample No.	Media/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	Sample Type
GM114SS1116		Soil Gas/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM114	11/29/2016 10:20	Field Sample
GM115IA1116		Indoor Air/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM115	11/30/2016 16:36	Field Sample
GM115SS1116		Soil Gas/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM115	11/30/2016 15:49	Field Sample
GM116IA1116		Indoor Air/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM116	11/30/2016 10:57	Field Sample
GM116SS1116		Soil Gas/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM116	11/30/2016 09:57	Field Sample
GM117IA1116		Indoor Air/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM117	11/30/2016 15:22	Field Sample
GM117SS1116		Soil Gas/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM117	11/30/2016 14:37	Field Sample
GM118IA1116		Indoor Air/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM118	11/30/2016 14:45	Field Sample
GM118SS1116		Soil Gas/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM118	11/30/2016 13:52	Field Sample
GM119IA1116		Indoor Air/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM119	11/30/2016 10:14	Field Sample

Special Instructions: Can #'s: GMTBA1116=20850, GMTBB1116=3590, GMTBC1116=3927, GM19AA1116=20834, GM19AA21116=20994, GM19AA31116=2782, GM18AA1116=3588, GM18AA21116=20970, GM18AA31116=20854, GM02AA1116=20987, GM02AA21116=20645, GM02AA31116=3931, GM01AA1116=20976, GM01AA21116=20978, GM01AA31116=20983, GM01AA1116D=14673, GM01AA21116D=20989, GM01AA31116D=20553, GM11AA1116=6687, GM11AA21116=2774, GM11AA31116=14875, GM12AA1116=4152, GM12AA21116=2777, GM12AA31116=20981, GM13AA1116=4477, GM13AA21116=4083, GM13AA31116=20644, GM114IA1116=4670, GM107SS1116=20857, GM111SS1116=20819, GM111IA1116=20990, GM114SS1116=20644, GM113IA1116=3938, GM121SS1116=20982, GM107SS1116S=20658, GM107IA1116=3977, GM107IA1116D=4340, GM110SS1116=2776, GM110IA1116=14675, GM12SS1116=20991, GM112IA1116=4419, GM113SS1116=4506, GM113IA1116=3938, GM121SS1116=20982, GM121IA1116=4394, GM109SS1116=2771, GM109IA1116=20651, GM119SS1116=4081, GM119IA1116=6681, GM116SS1116=5935, GM116IA1116=6678, GM108SS1116=471, GM108IA1116=3728, GM122SS1116=20980, GM122IA1116=20948, GM118SS1116=4560, GM118IA1116=20986, GM117SS1116=5927, GM117SS1116S=3910, GM117IA1116=20652, GM117IA1116D=20649, GM120SS1116=20973, GM120IA1116=20975, GM123SS1116=2773, GM123IA1116=20656

Analysis Key: VOA=(VOA) Volatile Organics

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
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65 *W. J. SED**Kimball EPA SED ASB**12/5/16 1030*



## USEPA Region 4 COC (REGION COPY)

Date Shipped: 12/2/2016

Carrier Name: GOV Carrier

Airbill No: n/a

## CHAIN OF CUSTODY RECORD

Grenada Manufacturing

Project Number: 17-0050

Cooler #: n/a

No: 12/01/16-0001

Lab: Region 4 Lab

Lab Contact: Mike Beall

Lab Phone: 706-355-8856

E165002

Sample Identifier	CLP Sample No.	Media/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	Sample Type
GM119SS1116		Soil Gas/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM119	11/30/2016 09:04	Field Sample
GM11AA1116		Ambient Air/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM11	11/29/2016 07:50	Field Sample
GM11AA21116		Ambient Air/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM11	11/30/2016 07:51	Field Sample
GM11AA31116		Ambient Air/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM11	12/01/2016 07:54	Field Sample
GM120A1116		Indoor Air/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM120	11/30/2016 17:23	Field Sample
GM120SS1116		Soil Gas/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM120	11/30/2016 16:30	Field Sample
GM121A1116		Indoor Air/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM121	11/29/2016 16:50	Field Sample
GM121SS1116		Soil Gas/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM121	11/29/2016 16:05	Field Sample
GM122A1116		Indoor Air/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM122	11/30/2016 12:32	Field Sample
GM122SS1116		Soil Gas/Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM122	11/30/2016 11:41	Field Sample

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Special Instructions: Can #s: GMTBA1116=20650, GMTBB1116=3590, GMTBC1116=3927, GM19AA1116=20834, GM19AA21116=20994, GM19AA31116=2782, GM18AA1116=3588, GM18AA21116=20970, GM18AA31116=20654, GM02AA1116=20987, GM02AA21116=20645, GM02AA31116=3931, GM01AA1116=20976, GM01AA21116=20978, GM01AA31116=20983, GM01AA1116D=14673, GM01AA21116D=20989, GM01AA31116D=20653, GM11AA1116=6687, GM11AA21116=2774, GM11AA31116=4875, GM12AA1116=4152, GM12AA21116=2777, GM12AA31116=20981, GM13AA1116=4477, GM13AA21116=4083, GM13AA31116=20647, GM16SS1116=20977, GM16SS21116=20646, GM11SS1116=20819, GM11SS21116=20990, GM11SS31116=20844, GM11SS41116=4670, GM10SS1116=20657, GM10SS21116=20658, GM10SS31116=3977, GM10SS41116=4340, GM11SS51116=2778, GM11SS61116=14875, GM12SS1116=20991, GM12SS21116=4419, GM12SS31116=2771, GM12SS41116=4081, GM12SS51116=20982, GM12SS61116=4394, GM10SS71116=2771, GM10SS81116=6678, GM10SS91116=20651, GM11SS1116=6681, GM11SS21116=5936, GM11SS31116=6678, GM10SS41116=4081, GM10SS51116=3938, GM11SS61116=20980, GM12SS71116=20648, GM12SS81116=4560, GM11SS91116=5927, GM11SS101116=3910, GM11SS11116=20652, GM11SS12116=20649, GM12SS1116=20973, GM12SS21116=2773, GM12SS31116=20656	Shipment for Case Complete? Y
Analysis Key: VOA=(VOA) Volatile Organics	Samples Transferred From Chain of Custody #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
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65 v. de SED 12/5/16 10:23 J. Beall EPA SED ASD 12/5/16 10:23 GMSD



## USEPA Region 4 COC (REGION COPY)

Date Shipped: 12/2/2016

Carrier Name: GOV Carrier

Airbill No: n/a

## CHAIN OF CUSTODY RECORD

Grenada Manufacturing

Project Number: 17-0050

Cooler #: n/a

No: 12/01/16-0001

Lab: Region 4 Lab

Lab Contact: Mike Beall

Lab Phone: 706-355-8856

Sample Identifier	CLP Sample No.	Media/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	Sample Type
-55 GM123IA1116		Indoor Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM123	12/01/2016 08:37	Field Sample
-56 GM123SS1116		Soil Gas/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM123	12/01/2016 08:38	Field Sample
-46 GM12AA1116		Ambient Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM12	11/29/2016 08:00	Field Sample
-47 GM12AA2116		Ambient Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM12	11/30/2016 08:05	Field Sample
-48 GM12AA3116		Ambient Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM12	12/01/2016 08:00	Field Sample
-57 GM13AA1116		Ambient Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM13	11/29/2016 08:08	Field Sample
-58 GM13AA2116		Ambient Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM13	11/30/2016 08:15	Field Sample
-59 GM13AA3116		Ambient Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM13	12/01/2016 08:10	Field Sample
-60 GM18AA1116		Ambient Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM18	11/29/2016 07:21	Field Sample
-61 GM18AA2116		Ambient Air/ Slaggle, Tim	Comp.	VOA	A (None) (1) ✓	GM18	11/30/2016 07:20	Field Sample

Special Instructions: Can #'s: GMTBA1116=20650, GMTBB1116=3590, GMTBCT1116=3927, GM19AA1116=20834, GM19AA21116=20984, GM19AA31116=2782, GM18AA1116=3588, GM18AA21116=20970, GM18AA31116=20654, GM02AA1116=20987, GM02AA21116=20645, GM02AA31116=3931, GM01AA1116=20976, GM01AA21116=20978, GM01AA31116=20983, GM01AA1116D=14673, GM01AA21116D=20989, GM01AA31116D=20653, GM11AA1116=6687, GM11AA21116=2774, GM11AA31116=4875, GM12AA1116=4152, GM12AA21116=2777, GM12AA31116=20981, GM13AA1116=4477, GM13AA21116=4083, GM13AA31116=20847, GM15SS1116=20977, GM17SS1116=20846, GM11SS1116=20819, GM11IA1116=20890, GM114SS1116=20644, GM114IA1116=4670, GM107SS1116=20657, GM107SS1116S=20658, GM107IA1116=3977, GM107IA1116D=4340, GM110SS1116=2776, GM110IA1116=14675, GM112SS1116=20991, GM112IA1116=4419, GM113SS1116=4505, GM113IA1116=3938, GM121SS1116=20982, GM121IA1116=4394, GM109SS1116=2771, GM109IA1116=20651, GM119SS1116=4081, GM119IA1116=6681, GM116SS1116=5935, GM116IA1116=6678, GM108SS1116=471, GM108IA1116=3728, GM122SS1116=20980, GM122IA1116=20648, GM118SS1116=4560, GM118IA1116=20986, GM117SS1116=5927, GM117SS1116S=3910, GM117IA1116=20652, GM117IA1116D=20649, GM120SS1116=20973, GM120IA1116=20975, GM123SS1116=2773, GM123IA1116=20656

Analysis Key: VOA=(VOA) Volatile Organics

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
--------------	--	-----------	--	-----------	-------------------------------

65 *Mike Beall EPA SEED* 12/5/16 10:23 *Mike Beall EPA SEED ASB* 12/5/16 1030 *Good*





[illegible]

Special Instructions: Can #'s: GMTB9A1116=20650, GMTB1116=3590, GMTBC1116=3927, GM19AA1116=20934, GM19AA2116=20994, GM19AA3116=2782, GM18AA1116=3598, GM18AA2116=20970, GM18AA3116=20854, GM02AA1116=20987, GM02AA2116=20645, GM02AA3116=3931, GM01AA1116=20976, GM01AA2116=20978, GM01AA3116=20983, GM01AA116D=14873, GM01AA2116D=20989, GM01AA3116D=20653, GM19AA1116=6887, GM19AA2116=2774, GM19AA3116=4875, GM12AA1116=4152, GM12AA2116=2777, GM12AA3116=20981, GM13AA1116=4477, GM13AA2116=4093, GM13AA3116=20647, GM15SS1116=20977, GM15IA1116=20646, GM11SS1116=20819, GM11IA1116=20980, GM14SS1116=20644, GM14IA1116=4670, GM10SS1116=20657, GM10SS1116S=20658, GM10IA1116=3977, GM10IA1116D=4340, GM10SS1116=2776, GM10IA1116=14675, GM12SS1116=20991, GM12IA1116=4419, GM13SS1116=4506, GM13IA1116=3938, GM12SS1116=20982, GM12IA1116=4394, GM10SS1116=2771, GM109IA1116=20651, GM119SS1116=4081, GM119IA1116=20980, GM116SS1116=58935, GM116IA1116=4678, GM108SS1116=471, GM108IA1116=03728, GM122SS1116=20980, GM122IA1116=20648, GM118SS1116=4560, GM118IA1116=20986, GM117SS1116=5927, GM117SS1116S=3910, GM117IA1116=20652, GM117IA1116D=20649, GM120SS1116=20973, GM120IA1116=20975, GM123SS1116=2773, GM123IA1116=20656

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[illegible]

End of Report

Gruball EPA 550 ABB 12/6/16 6000 1030



**From:** Wheeler, John  
**To:** Casteel, Sue; Adams, Glenn; Brackin, Bruce  
**Cc:** Holtzclaw, Brian; Bing, Leann  
**Subject:** RE: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger  
**Date:** Thursday, April 07, 2016 1:24:08 PM  
**Attachments:** image001.png

---

Sue,

Be careful how you state what that 8.5% represents. The 8.5% is not the chance of you getting cancer but the percent of adults walking around at some point in time that have been diagnosed with any type of cancer (see table A-3C). Your chance of getting cancer at some time in your life is around 39% according to the NCI. So, essentially (the way I interpret these numbers) is that 8.5% of adults walking around (alive) at any one time have cancer(diagnosed). Your chance of becoming one of those adults in your life is close to 39% (39% minus some amount attributed to a getting cancer before becoming an adult). I think Nicar?was comparing apples to oranges. I could not tell from his report but if that 30% represents cancers in the population over a life-time, then the rate is below the national average.

John

**From:** Casteel, Sue

**Sent:** Wednesday, April 06, 2016 1:06 PM

**To:** Adams, Glenn

**Cc:** Holtzclaw, Brian ; Wheeler, John ; Bing, Leann

**Subject:** RE: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

Glenn,

Per your question in the email chain below, this is the link to the 8.5% of people in the US getting cancer per the CDC website: <http://www.cdc.gov/nchs/fastats/cancer.htm>

Leann is the ATSDR site lead, and is out of town this week. We can discuss any health ed activities EPA thinks need to be taken by ATSDR when she gets back.

Sue

**From:** Holtzclaw, Brian

**Sent:** Wednesday, April 06, 2016 10:41 AM

**To:** Casteel, Sue <[Casteel.Sue@epa.gov](mailto:Casteel.Sue@epa.gov)>; Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>; Wheeler, John <[Wheeler.John@epa.gov](mailto:Wheeler.John@epa.gov)>

**Subject:** FW: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

Update on MSDH's cancer research.

**From:** Norman, Michael

**Sent:** Wednesday, April 06, 2016 10:00 AM

**To:** Holtzclaw, Brian <[Holtzclaw.Brian@epa.gov](mailto:Holtzclaw.Brian@epa.gov)>; Newman, Keriema <[Newman.Keriema@epa.gov](mailto:Newman.Keriema@epa.gov)>

**Subject:** FW: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

FYI

Michael A. Norman, Chief

RCRA Cleanup and Brownfields Branch

U. S. EPA Region 4



404-562-8792

**From:** Adams, Glenn

**Sent:** Tuesday, April 05, 2016 5:18 PM

**To:** Norman, Michael <[Norman.Michael@epa.gov](mailto:Norman.Michael@epa.gov)>; Anderson, Meredith <[Anderson.Meredith@epa.gov](mailto:Anderson.Meredith@epa.gov)>; Bastek, Brian <[Bastek.Brian@epa.gov](mailto:Bastek.Brian@epa.gov)>

**Subject:** FW: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

FYI, MS DOH is still working on the issue of cancer incidence.

Glenn Adams, Chief

Scientific Support Section

EPA Region 4 Superfund Division

404-562-8771 (office)

**From:** Brackin, Bruce [<mailto:Bruce.Brackin@msdh.ms.gov>]

**Sent:** Tuesday, April 05, 2016 4:46 PM

**To:** Adams, Glenn <[Adams.Glenn@epa.gov](mailto:Adams.Glenn@epa.gov)>; Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>; Wheeler, John <[Wheeler.John@epa.gov](mailto:Wheeler.John@epa.gov)>

**Cc:** Dobbs, Thomas E <[Thomas.Dobbs@msdh.ms.gov](mailto:Thomas.Dobbs@msdh.ms.gov)>; Byers, Paul <[Paul.Byers@msdh.ms.gov](mailto:Paul.Byers@msdh.ms.gov)>

**Subject:** RE: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

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One thing that would really help is a real census of the area. We can assume there is about 250 residents but that is about it.

**From:** Adams, Glenn [<mailto:Adams.Glenn@epa.gov>]

**Sent:** Tuesday, April 05, 2016 3:18 PM

**To:** Bing, Leann; Wheeler, John; Brackin, Bruce

**Subject:** FW: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

FYI, in case you haven't seen this. Also, here is an excerpt from the article. Do ya have any idea where that quote from CDC would come from? All I have ever seen is 25-33%.

Glenn

The percentage of long-term residents of the subdivision who have developed cancer is 30 percent. According to the Centers for Disease Control and Prevention, 8.5 percent of adults in the United States have been diagnosed with cancer

Glenn Adams, Chief  
Scientific Support Section  
EPA Region 4 Superfund Division  
404-562-8771 (office)

**From:** Holtzclaw, Brian

**Sent:** Monday, April 04, 2016 5:15 PM

**To:** Bentkowski, Ben <[Bentkowski.Ben@epa.gov](mailto:Bentkowski.Ben@epa.gov)>; Adams, Glenn <[Adams.Glenn@epa.gov](mailto:Adams.Glenn@epa.gov)>

**Subject:** Fwd: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping  
Clarion Ledger

FYI ... Sorry I overlooked you . Brian

Sent from my iPhone

Begin forwarded message:

**From:** "Holtzclaw, Brian" <[Holtzclaw.Brian@epa.gov](mailto:Holtzclaw.Brian@epa.gov)>

**Date:** April 4, 2016 at 4:19:04 PM EDT

**To:** "Ajanaku, Abena" <[ajanaku.abena@epa.gov](mailto:ajanaku.abena@epa.gov)>, "Davis, Anita"

<[Davis.Anita@epa.gov](mailto:Davis.Anita@epa.gov)>, "Amoroso, Cathy" <[Amoroso.Cathy@epa.gov](mailto:Amoroso.Cathy@epa.gov)>, "Rigger, Don"  
<[Rigger.Don@epa.gov](mailto:Rigger.Don@epa.gov)>

**Subject: FW: Clarion-Ledger article: Miss. community seeks answers years after toxic  
dumping Clarion Ledger**

FYI... Sharing to keep you in the loop ...

**From:** Marraccini, Davina

**Sent:** Monday, April 04, 2016 11:33 AM

**To:** Lincoln, Larry <[Lincoln.Larry@epa.gov](mailto:Lincoln.Larry@epa.gov)>; Delli-Gatti, Dionne <[Delli-Gatti.Dionne@epa.gov](mailto:Delli-Gatti.Dionne@epa.gov)>; Wise, Allison <[Wise.Allison@epa.gov](mailto:Wise.Allison@epa.gov)>; Jenkins, Brandi  
<[Jenkins.Brandi@epa.gov](mailto:Jenkins.Brandi@epa.gov)>; Jones-Johnson, Shea <[Jones-Johnson.Shea@epa.gov](mailto:Jones-Johnson.Shea@epa.gov)>;  
Freeman, Caroline <[Freeman.Caroline@epa.gov](mailto:Freeman.Caroline@epa.gov)>; Newman, Keriema  
<[Newman.Keriema@epa.gov](mailto:Newman.Keriema@epa.gov)>; Holtzclaw, Brian <[Holtzclaw.Brian@epa.gov](mailto:Holtzclaw.Brian@epa.gov)>; Bastek,  
Brian <[Bastek.Brian@epa.gov](mailto:Bastek.Brian@epa.gov)>; Anderson, Meredith <[Anderson.Meredith@epa.gov](mailto:Anderson.Meredith@epa.gov)>;  
Norman, Michael <[Norman.Michael@epa.gov](mailto:Norman.Michael@epa.gov)>; Pallas, Jeff <[Pallas.Jeff@epa.gov](mailto:Pallas.Jeff@epa.gov)>

**Subject:** Clarion-Ledger article: Miss. community seeks answers years after toxic  
dumping Clarion Ledger

Miss. community seeks answers years after toxic dumping Clarion Ledger

GRENADA - In a small community tucked at the intersection of the  
railroad and Riverdale creek in Grenada, it seems like everyone is  
getting sick.

<http://www.clarionledger.com/story/news/2016/04/02/miss-community-seeks-answers-years-after-toxic-dumping/82467236/>

Davina Marraccini  
Public Affairs Specialist  
U.S. EPA Region 4  
404-562-8293 (office)

404-387-4368 (cell)

404-562-8335 (fax)

[marraccini.davina@epa.gov](mailto:marraccini.davina@epa.gov)

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**From:** Brackin, Bruce  
**To:** Wheeler, John; Casteel, Sue; Adams, Glenn  
**Cc:** Holtzclaw, Brian; Bing, Leann  
**Subject:** RE: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger  
**Date:** Thursday, April 07, 2016 2:03:00 PM  
**Attachments:** image001.png

---

John – I certainly agree. They cite the 8.5% as the proportions of adults essentially in the old prevalence pot at the time NHANES did survey.

If the neighborhood age distribution is shifted toward older group then the expected # could go up substantially. Here's chopped down version.

Age (years)	
18–44	2.0 (0.15)
45–64	9.3 (0.43)
65–74	19.8 (0.75)
75 and over	28.0 (1.06)

On the other hand the rate given for blacks is 4.1 vs 9.6 for whites and the community is all black. Bruce

**From:** Wheeler, John [mailto:Wheeler.John@epa.gov]  
**Sent:** Thursday, April 07, 2016 12:24 PM  
**To:** Casteel, Sue; Adams, Glenn; Brackin, Bruce  
**Cc:** Holtzclaw, Brian; Bing, Leann  
**Subject:** RE: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger Sue,

Be careful how you state what that 8.5% represents. The 8.5% is not the chance of you getting cancer but the percent of adults walking around at some point in time that have been diagnosed with any type of cancer (see table A-3C). Your chance of getting cancer at some time in your life is around 39% according to the NCI. So, essentially (the way I interpret these numbers) is that 8.5% of adults walking around (alive) at any one time have cancer(diagnosed). Your chance of becoming one of those adults in your life is close to 39% (39% minus some amount attributed to a getting cancer before becoming an adult). I think Nicar?was comparing apples to oranges. I could not tell from his report but if that 30% represents cancers in the population over a life-time, then the rate is below the national average.

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**Sent:** Wednesday, April 06, 2016 1:06 PM  
**To:** Adams, Glenn <Adams.Glenn@epa.gov>  
**Cc:** Holtzclaw, Brian <Holtzclaw.Brian@epa.gov>; Wheeler, John <Wheeler.John@epa.gov>; Bing, Leann <Bing.Leann@epa.gov>  
**Subject:** RE: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger Glenn,

Per your question in the email chain below, this is the link to the 8.5% of people in the US getting cancer per the CDC website: <http://www.cdc.gov/nchs/fastats/cancer.htm>

Leann is the ATSDR site lead, and is out of town this week. We can discuss any health ed activities EPA thinks need to be taken by ATSDR when she gets back.

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**Subject:** FW: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping  
Clarion Ledger  
Update on MSDH's cancer research.

**From:** Norman, Michael

**Sent:** Wednesday, April 06, 2016 10:00 AM

**To:** Holtzclaw, Brian <[Holtzclaw.Brian@epa.gov](mailto:Holtzclaw.Brian@epa.gov)>; Newman, Keriema <[Newman.Keriema@epa.gov](mailto:Newman.Keriema@epa.gov)>

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FYI

Michael A. Norman, Chief

RCRA Cleanup and Brownfields Branch

U. S. EPA Region 4

404-562-8792

**From:** Adams, Glenn

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**To:** Norman, Michael <[Norman.Michael@epa.gov](mailto:Norman.Michael@epa.gov)>; Anderson, Meredith <[Anderson.Meredith@epa.gov](mailto:Anderson.Meredith@epa.gov)>; Bastek, Brian <[Bastek.Brian@epa.gov](mailto:Bastek.Brian@epa.gov)>

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FYI, MS DOH is still working on the issue of cancer incidence.

Glenn Adams, Chief

Scientific Support Section

EPA Region 4 Superfund Division

404-562-8771 (office)

**From:** Brackin, Bruce [<mailto:Bruce.Brackin@msdh.ms.gov>]

**Sent:** Tuesday, April 05, 2016 4:46 PM

**To:** Adams, Glenn <[Adams.Glenn@epa.gov](mailto:Adams.Glenn@epa.gov)>; Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>; Wheeler, John <[Wheeler.John@epa.gov](mailto:Wheeler.John@epa.gov)>

**Cc:** Dobbs, Thomas E <[Thomas.Dobbs@msdh.ms.gov](mailto:Thomas.Dobbs@msdh.ms.gov)>; Byers, Paul <[Paul.Byers@msdh.ms.gov](mailto:Paul.Byers@msdh.ms.gov)>

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**To:** Bing, Leann; Wheeler, John; Brackin, Bruce

**Subject:** FW: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger  
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EPA Region 4 Superfund Division  
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**To:** Bentkowski, Ben <[Bentkowski.Ben@epa.gov](mailto:Bentkowski.Ben@epa.gov)>; Adams, Glenn <[Adams.Glenn@epa.gov](mailto:Adams.Glenn@epa.gov)>

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**Date:** April 4, 2016 at 4:19:04 PM EDT

**To:** "Ajanaku, Abena" <[ajanaku.abena@epa.gov](mailto:ajanaku.abena@epa.gov)>, "Davis, Anita" <[Davis.Anita@epa.gov](mailto:Davis.Anita@epa.gov)>, "Amoroso, Cathy" <[Amoroso.Cathy@epa.gov](mailto:Amoroso.Cathy@epa.gov)>, "Rigger, Don" <[Rigger.Don@epa.gov](mailto:Rigger.Don@epa.gov)>

**Subject:** FW: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

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**From:** Marraccini, Davina

**Sent:** Monday, April 04, 2016 11:33 AM

**To:** Lincoln, Larry <[Lincoln.Larry@epa.gov](mailto:Lincoln.Larry@epa.gov)>; Delli-Gatti, Dionne <[Delli-Gatti.Dionne@epa.gov](mailto:Delli-Gatti.Dionne@epa.gov)>; Wise, Allison <[Wise.Allison@epa.gov](mailto:Wise.Allison@epa.gov)>; Jenkins, Brandi

<[Jenkins.Brandi@epa.gov](mailto:Jenkins.Brandi@epa.gov)>; Jones-Johnson, Shea <[Jones-Johnson.Shea@epa.gov](mailto:Jones-Johnson.Shea@epa.gov)>;  
Freeman, Caroline <[Freeman.Caroline@epa.gov](mailto:Freeman.Caroline@epa.gov)>; Newman, Keriema  
<[Newman.Keriema@epa.gov](mailto:Newman.Keriema@epa.gov)>; Holtzclaw, Brian <[Holtzclaw.Brian@epa.gov](mailto:Holtzclaw.Brian@epa.gov)>; Bastek,  
Brian <[Bastek.Brian@epa.gov](mailto:Bastek.Brian@epa.gov)>; Anderson, Meredith <[Anderson.Meredith@epa.gov](mailto:Anderson.Meredith@epa.gov)>;  
Norman, Michael <[Norman.Michael@epa.gov](mailto:Norman.Michael@epa.gov)>; Pallas, Jeff <[Pallas.Jeff@epa.gov](mailto:Pallas.Jeff@epa.gov)>

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Davina Marraccini

Public Affairs Specialist

U.S. EPA Region 4

404-562-8293 (office)

404-387-4368 (cell)

404-562-8335 (fax)

[marraccini.davina@epa.gov](mailto:marraccini.davina@epa.gov)

\*\*\* Save trees! Please don't print this message unless necessary.

**From:** [Wheeler, John](#)  
**To:** [Brackin, Bruce](#); [Casteel, Sue](#); [Adams, Glenn](#)  
**Cc:** [Holtzclaw, Brian](#); [Bing, Leann](#)  
**Subject:** RE: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger  
**Date:** Thursday, April 07, 2016 2:34:40 PM  
**Attachments:** [image001.png](#)

---

The numbers are all prevalence and 95% Confidence Intervals, correct??

**From:** Brackin, Bruce [mailto:[Bruce.Brackin@msdh.ms.gov](mailto:Bruce.Brackin@msdh.ms.gov)]  
**Sent:** Thursday, April 07, 2016 2:03 PM  
**To:** Wheeler, John ; Casteel, Sue ; Adams, Glenn  
**Cc:** Holtzclaw, Brian ; Bing, Leann  
**Subject:** RE: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

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**Subject:** RE: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

Sue,  
Be careful how you state what that 8.5% represents. The 8.5% is not the chance of you getting cancer but the percent of adults walking around at some point in time that have been diagnosed with any type of cancer (see table A-3C). Your chance of getting cancer at some time in your life is around 39% according to the NCI. So, essentially (the way I interpret these numbers) is that 8.5% of adults walking around (alive) at any one time have cancer(diagnosed). Your chance of becoming one of those adults in your life is close to 39% (39% minus some amount attributed to a getting cancer before becoming an adult). I think Nicar?was comparing apples to oranges. I could not tell from his report but if that 30% represents cancers in the population over a life-time, then the rate is below the national average.

John

**From:** Casteel, Sue  
**Sent:** Wednesday, April 06, 2016 1:06 PM  
**To:** Adams, Glenn <[Adams.Glenn@epa.gov](mailto:Adams.Glenn@epa.gov)>  
**Cc:** Holtzclaw, Brian <[Holtzclaw.Brian@epa.gov](mailto:Holtzclaw.Brian@epa.gov)>; Wheeler, John <[Wheeler.John@epa.gov](mailto:Wheeler.John@epa.gov)>; Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>

**Subject:** RE: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

Glenn,

Per your question in the email chain below, this is the link to the 8.5% of people in the US getting cancer per the CDC website: <http://www.cdc.gov/nchs/fastats/cancer.htm>

Leann is the ATSDR site lead, and is out of town this week. We can discuss any health ed activities EPA thinks need to be taken by ATSDR when she gets back.

Sue

**From:** Holtzclaw, Brian

**Sent:** Wednesday, April 06, 2016 10:41 AM

**To:** Casteel, Sue <[Casteel.Sue@epa.gov](mailto:Casteel.Sue@epa.gov)>; Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>; Wheeler, John <[Wheeler.John@epa.gov](mailto:Wheeler.John@epa.gov)>

**Subject:** FW: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

Update on MSDH's cancer research.

**From:** Norman, Michael

**Sent:** Wednesday, April 06, 2016 10:00 AM

**To:** Holtzclaw, Brian <[Holtzclaw.Brian@epa.gov](mailto:Holtzclaw.Brian@epa.gov)>; Newman, Keriema <[Newman.Keriema@epa.gov](mailto:Newman.Keriema@epa.gov)>

**Subject:** FW: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

FYI

Michael A. Norman, Chief

RCRA Cleanup and Brownfields Branch

U. S. EPA Region 4

404-562-8792

**From:** Adams, Glenn

**Sent:** Tuesday, April 05, 2016 5:18 PM

**To:** Norman, Michael <[Norman.Michael@epa.gov](mailto:Norman.Michael@epa.gov)>; Anderson, Meredith <[Anderson.Meredith@epa.gov](mailto:Anderson.Meredith@epa.gov)>; Bastek, Brian <[Bastek.Brian@epa.gov](mailto:Bastek.Brian@epa.gov)>

**Subject:** FW: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

FYI, MS DOH is still working on the issue of cancer incidence.

Glenn Adams, Chief

Scientific Support Section

EPA Region 4 Superfund Division

404-562-8771 (office)

**From:** Brackin, Bruce [<mailto:Bruce.Brackin@msdh.ms.gov>]

**Sent:** Tuesday, April 05, 2016 4:46 PM

**To:** Adams, Glenn <[Adams.Glenn@epa.gov](mailto:Adams.Glenn@epa.gov)>; Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>; Wheeler, John <[Wheeler.John@epa.gov](mailto:Wheeler.John@epa.gov)>

**Cc:** Dobbs, Thomas E <[Thomas.Dobbs@msdh.ms.gov](mailto:Thomas.Dobbs@msdh.ms.gov)>; Byers, Paul <[Paul.Byers@msdh.ms.gov](mailto:Paul.Byers@msdh.ms.gov)>

**Subject:** RE: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

Thanks Glen – I'd not seen the reference to 30 with ca – The toxicologist's letter claimed 3x normal

rate but offers N's, no time period or ages. I think I can find the 8.5% of the general US (all ages) having Ca at any given time or time period. But keep in mind age is the single strongest predictor and rates roughly start doubling every 10 years beginning at about age 35. So if there is a bunch of older folks, 30 would certainly be possible.

Our registry pulled 2003-2013 data for the 5 streets and they show 14 total cases reported. Numbers too low to give breaking down further for the most part due to their confidentiality threshold of 5 so we know some sites of interest are somewhere between 1 - 4. But the major types of colorectal, breast, lung and prostate combined make up 8 of the 14 and proportionally that is no different than the county as a whole for blacks. We'll have the vital records data shortly and once added and summarized, we'll provide you all with it. Keep in mind the limitations of address at time of diagnosis we've discussed..

One thing that would really help is a real census of the area. We can assume there is about 250 residents but that is about it.

**From:** Adams, Glenn [<mailto:Adams.Glenn@epa.gov>]

**Sent:** Tuesday, April 05, 2016 3:18 PM

**To:** Bing, Leann; Wheeler, John; Brackin, Bruce

**Subject:** FW: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

FYI, in case you haven't seen this. Also, here is an excerpt from the article. Do ya have any idea where that quote from CDC would come from? All I have ever seen is 25-33%.

Glenn

The percentage of long-term residents of the subdivision who have developed cancer is 30 percent. According to the Centers for Disease Control and Prevention, 8.5 percent of adults in the United States have been diagnosed with cancer.

Glenn Adams, Chief  
Scientific Support Section  
EPA Region 4 Superfund Division  
404-562-8771 (office)

**From:** Holtzclaw, Brian

**Sent:** Monday, April 04, 2016 5:15 PM

**To:** Bentkowski, Ben <[Bentkowski.Ben@epa.gov](mailto:Bentkowski.Ben@epa.gov)>; Adams, Glenn <[Adams.Glenn@epa.gov](mailto:Adams.Glenn@epa.gov)>

**Subject:** Fwd: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

FYI ... Sorry I overlooked you . Brian

Sent from my iPhone

Begin forwarded message:

**From:** "Holtzclaw, Brian" <[Holtzclaw.Brian@epa.gov](mailto:Holtzclaw.Brian@epa.gov)>

**Date:** April 4, 2016 at 4:19:04 PM EDT

**To:** "Ajanaku, Abena" <[ajanaku.abena@epa.gov](mailto:ajanaku.abena@epa.gov)>, "Davis, Anita"

<[Davis.Anita@epa.gov](mailto:Davis.Anita@epa.gov)>, "Amoroso, Cathy" <[Amoroso.Cathy@epa.gov](mailto:Amoroso.Cathy@epa.gov)>, "Rigger, Don"

<[Rigger.Don@epa.gov](mailto:Rigger.Don@epa.gov)>

**Subject: FW: Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger**

FYI... Sharing to keep you in the loop ...

**From:** Marraccini, Davina

**Sent:** Monday, April 04, 2016 11:33 AM

**To:** Lincoln, Larry <[Lincoln.Larry@epa.gov](mailto:Lincoln.Larry@epa.gov)>; Delli-Gatti, Dionne <[Delli-Gatti.Dionne@epa.gov](mailto:Delli-Gatti.Dionne@epa.gov)>; Wise, Allison <[Wise.Allison@epa.gov](mailto:Wise.Allison@epa.gov)>; Jenkins, Brandi <[Jenkins.Brandi@epa.gov](mailto:Jenkins.Brandi@epa.gov)>; Jones-Johnson, Shea <[Jones-Johnson.Shea@epa.gov](mailto:Jones-Johnson.Shea@epa.gov)>; Freeman, Caroline <[Freeman.Caroline@epa.gov](mailto:Freeman.Caroline@epa.gov)>; Newman, Keriema <[Newman.Keriema@epa.gov](mailto:Newman.Keriema@epa.gov)>; Holtzclaw, Brian <[Holtzclaw.Brian@epa.gov](mailto:Holtzclaw.Brian@epa.gov)>; Bastek, Brian <[Bastek.Brian@epa.gov](mailto:Bastek.Brian@epa.gov)>; Anderson, Meredith <[Anderson.Meredith@epa.gov](mailto:Anderson.Meredith@epa.gov)>; Norman, Michael <[Norman.Michael@epa.gov](mailto:Norman.Michael@epa.gov)>; Pallas, Jeff <[Pallas.Jeff@epa.gov](mailto:Pallas.Jeff@epa.gov)>

**Subject:** Clarion-Ledger article: Miss. community seeks answers years after toxic dumping Clarion Ledger

Miss. community seeks answers years after toxic dumping Clarion Ledger

GRENADA - In a small community tucked at the intersection of the railroad and Riverdale creek in Grenada, it seems like everyone is getting sick.

<http://www.clarionledger.com/story/news/2016/04/02/miss-community-seeks-answers-years-after-toxic-dumping/82467236/>

Davina Marraccini

Public Affairs Specialist

U.S. EPA Region 4

404-562-8293 (office)

404-387-4368 (cell)

404-562-8335 (fax)

[marraccini.davina@epa.gov](mailto:marraccini.davina@epa.gov)

\*\*\* Save trees! Please don't print this message unless necessary.



**From:** Brackin, Bruce  
**To:** Bing, Leann  
**Subject:** RE: Drinking water  
**Date:** Wednesday, May 16, 2018 1:50:32 PM

---

Leann

I got your request in. I was going to look at our on-line system but got notice it is down this week for upgrade so that bombed out for now.

Worked on the mortality and cancer update a little this morning:

Old all cause mortality rate was 585/100,000, new 463, county rate about 1200 for blacks and 850 for state blacks. Old cancer mortality rate was 219/100,000 and new is 185, county rate was 234 for blacks and 173 for state blacks.

Old cancer incidence rate was 674/100,000 and new is 660, county level for blacks is 531 and 571 for state level.

I will do CIs but given the <20 events we know the rates will have about +/-50% or more swings. In a nutshell, no real changes noted. We have 18 years for mortality data and 16 for cancer incidence data.

Bruce

Bruce

---

**From:** Bing, Leann [Bing.Leann@epa.gov]  
**Sent:** Tuesday, May 15, 2018 5:25 PM  
**To:** Brackin, Bruce  
**Subject:** Drinking water

Can you get us the drinking water data for this area please? We've had additional questions.

Leann Bing  
ATSDR  
KBing@cdc.gov  
404.562.1784 (office)  
404.747.4451 (cell)  
404.562.1788 (Region 4 On Call)

**From:** Wheeler, John  
**To:** Bastek, Brian  
**Cc:** Bing, Leann; Casteel, Sue; Anderson, Meredith; Norman, Michael  
**Subject:** RE: Grenada ATSDR health consultation  
**Date:** Friday, April 08, 2016 3:08:04 PM

---

Brian,  
ATSDR reg 4 folks were all out last week at a retreat so sorry it took me a week to respond. I have shared this with upper management at ATSDR. I foresee no reason we will not be providing a health consult for Grenada. But I need to let the request "run up the ladder" before we formally accept it.

Have a good weekend.  
John

-----Original Message-----

**From:** Bastek, Brian  
**Sent:** Thursday, March 31, 2016 1:47 PM  
**To:** Wheeler, John <Wheeler.John@epa.gov>  
**Cc:** Bing, Leann <Bing.Leann@epa.gov>; Casteel, Sue <Casteel.Sue@epa.gov>; Anderson, Meredith <Anderson.Meredith@epa.gov>; Norman, Michael <Norman.Michael@epa.gov>  
**Subject:** Grenada ATSDR health consultation

Hi John.

Please consider this a formal request for ATSDR's help with a health consultation for the Eastern Heights subdivision in Grenada, MS. Based on your outline below, these are our initial responses. Please contact me with any questions; I've attached some data sets that I think will be useful in your evaluation; more to come later.

- 1) Community is the Eastern Heights subdivision, Grenada, Grenada County, MS located adjacent to the facility. The facility's address is 635 Hwy 332, Grenada, MS 38901.
- 2) Questions to be answered: Are the residents at risk from exposure to site-related contaminants (including TCE and its break-down products, hex chrome, toluene) from all media? Is there an elevated incidence of cancer/non-cancer health effects in the Eastern Heights community? How does long-term exposure to very low levels of TCE and other contaminants in indoor and ambient air affect human health? Also, how does low level concentrations of certain chemicals in river water affect all possible exposure pathways?
- 3) Timeframe: as soon as reasonably possible in order to provide answers to a very concerned community base.
- 4) Brian Bastek will provide any and all applicable data sets, including upcoming data collection in May 2016. Future data sets may also need to be evaluated as part of this consultation.

Brian Bastek  
Environmental Engineer  
U.S. EPA, Region 4  
RCRA Corrective Action and Permitting Section Resource Conservation and Restoration Division  
61 Forsyth Street, SW  
Atlanta, GA 30303  
404-562-8511  
bastek.brian@epa.gov

-----Original Message-----

**From:** Norman, Michael  
**Sent:** Friday, March 18, 2016 1:55 PM  
**To:** Anderson, Meredith <Anderson.Meredith@epa.gov>; Bastek, Brian <Bastek.Brian@epa.gov>  
**Subject:** FW: ATSDR health consultation

Brian and Meredith,

Please draft a request for a health consultation for Grenada using John's outline below. Coordinate with Glenn's group if necessary. Thanks.

Michael A. Norman, Chief  
RCRA Cleanup and Brownfields Branch  
U. S. EPA Region 4  
404-562-8792

-----Original Message-----

From: John Wheeler [mailto: [REDACTED]]  
Sent: Friday, March 18, 2016 9:32 AM  
To: Norman, Michael <Norman.Michael@epa.gov>; kgb0@cdc.gov  
Subject: ATSDR health consultation

Mike,

I got some better definition on how to send in a request to ATSDR for a Health Consultation.

The request should

- 1) Define the location of the community/site
- 2) Define what questions you want ATSDR to answer (e.g., Does TCE exposure in this community pose a health risk?)
- 3) What kind of time-line you are needing
- 4) List data sets available that can help ATSDR make conclusions.

The request can be as informal as an e-mail to me or to my Division Director, Eleana Arias. Or as formal as a letter to our director (Patrick Breyse) from your RA -- I don't think this is necessary but is an option.

John  
Director, Region IV ATSDR

PS please use my work email Wheeler.John@epa.gov The above is my personal email.

**From:** Bastek, Brian  
**To:** Bing, Leann  
**Subject:** RE: Grenada ATSDR health consultation  
**Date:** Tuesday, May 17, 2016 4:35:13 PM

---

OK, sounds good. Would on-site data apply at all to your review? We mostly have on-site groundwater data and since that aquifer isn't used as a drinking water source then I'm guessing it isn't useful to you.

Maybe more data from the creek?

Brian Bastek  
Environmental Engineer  
U.S. EPA, Region 4  
RCRA Corrective Action and Permitting Section  
Resource Conservation and Restoration Division  
61 Forsyth Street, SW  
Atlanta, GA 30303  
404-562-8511  
bastek.brian@epa.gov

-----Original Message-----

**From:** Bing, Leann  
**Sent:** Tuesday, May 17, 2016 4:29 PM  
**To:** Bastek, Brian <Bastek.Brian@epa.gov>  
**Subject:** RE: Grenada ATSDR health consultation

Okay. The data set is fairly small, so I'm aiming for a month or less. I'd like to review all the current sample data available before any call. Basically, the sampling rounds up to this point. After I complete my draft, then John will review it. We will send it to you for data validation. Then it will go through our clearance.

My limitations are that I'm juggling priorities with other sites. I cover all Brownfield/Land Reuse sites and grants, emergency response, petition sites, and NPL sites. My open Funding Opportunity closes on July 5. The month of July will most focus on grant review.

Good news is that I've started reviewing what I have. This week is fairly quiet and hopefully productive.

Leann Bing  
ATSDR Region IV Representative

Agency for Toxic Substances and Disease Registry (ATSDR)  
61 Forsyth St. SW (9th Floor Mail only)  
Atlanta, GA 30303  
404.562.1784  
404.747.4451 (cell)  
Bing.Leann@epa.gov or KBing@cdc.gov

Office location: 16T50

New Funding Opportunity Available!

CDC-RFA-TS16-1602 Community Health Projects Related to Contamination at Brownfield/Land Reuse Sites

<http://www.grants.gov/web/grants/search-grants.html?keywords=cdc-rfa-ts16-1602>

Application Deadline: July 5, 2016

ATSDR

<http://www.atsdr.cdc.gov/>

ATSDR Brownfield/Land Reuse Health Initiative ATSDR.LandReuse@cdc.gov  
<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

-----Original Message-----

From: Bastek, Brian  
Sent: Tuesday, May 17, 2016 4:18 PM  
To: Bing, Leann <Bing.Leann@epa.gov>  
Subject: RE: Grenada ATSDR health consultation

You have all the neighborhood data that I have at this point. More will be coming in the near future, but didn't know if you could start without that or not? I think we are looking at all media, but don't have a specific timeline for you. I think because most people don't know how this works they are asking these questions.

Let's maybe talk this week sometime over some of the details.

Thanks.

Brian Bastek  
Environmental Engineer  
U.S. EPA, Region 4  
RCRA Corrective Action and Permitting Section Resource Conservation and Restoration Division  
61 Forsyth Street, SW  
Atlanta, GA 30303  
404-562-8511  
bastek.brian@epa.gov

-----Original Message-----

From: Bing, Leann  
Sent: Tuesday, May 17, 2016 4:11 PM  
To: Bastek, Brian <Bastek.Brian@epa.gov>  
Subject: RE: Grenada ATSDR health consultation

Hi Brian,

Last email I had from you, you were going to send additional data to me. I've been waiting for the data.

What is EPA's timeline for the health consultation? All media? Vapor intrusion only?

Leann Bing  
ATSDR Region IV Representative

Agency for Toxic Substances and Disease Registry (ATSDR)  
61 Forsyth St. SW (9th Floor Mail only)  
Atlanta, GA 30303  
404.562.1784  
404.747.4451 (cell)  
Bing.Leann@epa.gov or KBing@cdc.gov

Office location: 16T50

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Application Deadline: July 5, 2016

ATSDR

<http://www.atsdr.cdc.gov/>

ATSDR Brownfield/Land Reuse Health Initiative [ATSDR.LandReuse@cdc.gov](mailto:ATSDR.LandReuse@cdc.gov)

<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

-----Original Message-----

From: Bastek, Brian

Sent: Tuesday, May 17, 2016 3:35 PM

To: Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>

Subject: FW: Grenada ATSDR health consultation

Hi Leann.

Management here was asking about the health consultation and how it is going/how long it will take? I know these things take time, but wanted to try and give them some perspective on the progress.

Hope you are doing well.

Thanks.

Brian Bastek

Environmental Engineer

U.S. EPA, Region 4

RCRA Corrective Action and Permitting Section Resource Conservation and Restoration Division

61 Forsyth Street, SW

Atlanta, GA 30303

404-562-8511

[bastek.brian@epa.gov](mailto:bastek.brian@epa.gov)

-----Original Message-----

From: Bastek, Brian

Sent: Tuesday, May 10, 2016 9:10 AM

To: Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>

Subject: RE: Grenada ATSDR health consultation

Hi Leann. Yes, please see attached plus I'll have some more from our expanded VI study in a couple of weeks.

Thanks.

Brian Bastek

Environmental Engineer

U.S. EPA, Region 4

RCRA Corrective Action and Permitting Section Resource Conservation and Restoration Division

61 Forsyth Street, SW

Atlanta, GA 30303

404-562-8511

bastek.brian@epa.gov

-----Original Message-----

From: Bing, Leann  
Sent: Monday, May 09, 2016 5:32 PM  
To: Bastek, Brian <Bastek.Brian@epa.gov>  
Subject: FW: Grenada ATSDR health consultation

Hi Brian,

Just checking in. I heard through the grapevine that you might have additional data for me to review from Grenada.

Leann Bing  
ATSDR Region IV Representative

Agency for Toxic Substances and Disease Registry (ATSDR)  
61 Forsyth St. SW (9th Floor Mail only)  
Atlanta, GA 30303  
404.562.1784  
404.747.4451 (cell)  
Bing.Leann@epa.gov or KBing@cdc.gov

Office location: 16T50

New Funding Opportunity Available!  
CDC-RFA-TS16-1602 Community Health Projects Related to Contamination at Brownfield/Land Reuse Sites  
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Application Deadline: July 5, 2016

ATSDR  
<http://www.atsdr.cdc.gov/>

ATSDR Brownfield/Land Reuse Health Initiative ATSDR.LandReuse@cdc.gov  
<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

-----Original Message-----

From: Bing, Leann  
Sent: Tuesday, May 03, 2016 9:09 AM  
To: Bastek, Brian <Bastek.Brian@epa.gov>  
Subject: FW: Grenada ATSDR health consultation

Hi Brian,

I hope your trip is going well. This is the most recent data that I have received from you. In your voice mail, you indicated that you might have additional data to send me.

Are there any more sampling events scheduled? When? For which media?

Will you need ATSDR assistance at any future meetings this fiscal year?

We're accepting EPA's request for health consultation. I'll send an official acceptance email soon.

I'm out of the office starting on Wednesday afternoon through Friday. I'm back in the office on Monday, May 9.

Leann Bing  
ATSDR Region IV Representative

Agency for Toxic Substances and Disease Registry (ATSDR)  
61 Forsyth St. SW (9th Floor Mail only)  
Atlanta, GA 30303  
404.562.1784  
404.747.4451 (cell)  
Bing.Leann@epa.gov or KBing@cdc.gov

Office location: 16T50

ATSDR  
<http://www.atsdr.cdc.gov/>

ATSDR Brownfield/Land Reuse Health Initiative ATSDR.LandReuse@cdc.gov  
<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

-----Original Message-----

From: Bastek, Brian  
Sent: Thursday, March 31, 2016 1:47 PM  
To: Wheeler, John <Wheeler.John@epa.gov>  
Cc: Bing, Leann <Bing.Leann@epa.gov>; Casteel, Sue <Casteel.Sue@epa.gov>; Anderson, Meredith <Anderson.Meredith@epa.gov>; Norman, Michael <Norman.Michael@epa.gov>  
Subject: Grenada ATSDR health consultation

Hi John.

Please consider this a formal request for ATSDR's help with a health consultation for the Eastern Heights subdivision in Grenada, MS. Based on your outline below, these are our initial responses. Please contact me with any questions; I've attached some data sets that I think will be useful in your evaluation; more to come later.

- 1) Community is the Eastern Heights subdivision, Grenada, Grenada County, MS located adjacent to the facility. The facility's address is 635 Hwy 332, Grenada, MS 38901.
- 2) Questions to be answered: Are the residents at risk from exposure to site-related contaminants (including TCE and its break-down products, hex chrome, toluene) from all media? Is there an elevated incidence of cancer/non-cancer health effects in the Eastern Heights community? How does long-term exposure to very low levels of TCE and other contaminants in indoor and ambient air affect human health? Also, how does low level concentrations of certain chemicals in river water affect all possible exposure pathways?
- 3) Timeframe: as soon as reasonably possible in order to provide answers to a very concerned community base.
- 4) Brian Bastek will provide any and all applicable data sets, including upcoming data collection in May 2016. Future data sets may also need to be evaluated as part of this consultation.

Brian Bastek  
Environmental Engineer  
U.S. EPA, Region 4  
RCRA Corrective Action and Permitting Section Resource Conservation and Restoration Division  
61 Forsyth Street, SW  
Atlanta, GA 30303  
404-562-8511  
bastek.brian@epa.gov

-----Original Message-----



To: Anderson, Meredith <Anderson.Meredith@epa.gov>; Bastek, Brian <Bastek.Brian@epa.gov>  
Subject: FW: ATSDR health consultation

Brian and Meredith,

Please draft a request for a health consultation for Grenada using John's outline below. Coordinate with Glenn's group if necessary. Thanks.

Michael A. Norman, Chief  
RCRA Cleanup and Brownfields Branch  
U. S. EPA Region 4  
404-562-8792

-----Original Message-----

From: John Wheeler [mailto: ]  
Sent: Friday, March 18, 2016 9:32 AM  
To: Norman, Michael <Norman.Michael@epa.gov>; kgb0@cdc.gov  
Subject: ATSDR health consultation

Mike,

I got some better definition on how to send in a request to ATSDR for a Health Consultation.

The request should

- 1) Define the location of the community/site
- 2) Define what questions you want ATSDR to answer (e.g., Does TCE exposure in this community pose a health risk?)
- 3) What kind of time-line you are needing
- 4) List data sets available that can help ATSDR make conclusions.

The request can be as informal as an e-mail to me or to my Division Director, Eleana Arias. Or as formal as a letter to our director (Patrick Breysse) from your RA -- I don't think this is necessary but is an option.

John  
Director, Region IV ATSDR

PS please use my work email Wheeler.John@epa.gov The above is my personal email.

**From:** Bastek, Brian  
**To:** Bing, Leann  
**Subject:** RE: Grenada ATSDR health consultation  
**Date:** Thursday, May 19, 2016 2:03:31 PM

---

OK, I'll also send you via SharePoint the latest annual report which has all the historical groundwater data from the site.

Thanks.

Brian Bastek  
Environmental Engineer  
U.S. EPA, Region 4  
RCRA Corrective Action and Permitting Section  
Resource Conservation and Restoration Division  
61 Forsyth Street, SW  
Atlanta, GA 30303  
404-562-8511  
bastek.brian@epa.gov

-----Original Message-----

From: Bing, Leann  
Sent: Tuesday, May 17, 2016 4:44 PM  
To: Bastek, Brian <Bastek.Brian@epa.gov>  
Subject: RE: Grenada ATSDR health consultation

Any and all groundwater, creek, soil gas, indoor air, and soil data is helpful on and off-site.

Leann Bing  
ATSDR Region IV Representative

Agency for Toxic Substances and Disease Registry (ATSDR)  
61 Forsyth St. SW (9th Floor Mail only)  
Atlanta, GA 30303  
404.562.1784  
404.747.4451 (cell)  
Bing.Leann@epa.gov or KBing@cdc.gov

Office location: 16T50

New Funding Opportunity Available!  
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<http://www.grants.gov/web/grants/search-grants.html?keywords=cdc-rfa-ts16-1602>  
Application Deadline: July 5, 2016

ATSDR  
<http://www.atsdr.cdc.gov/>

ATSDR Brownfield/Land Reuse Health Initiative [ATSDR.LandReuse@cdc.gov](mailto:ATSDR.LandReuse@cdc.gov)  
<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

-----Original Message-----

From: Bastek, Brian  
Sent: Tuesday, May 17, 2016 4:35 PM  
To: Bing, Leann <Bing.Leann@epa.gov>  
Subject: RE: Grenada ATSDR health consultation

OK, sounds good. Would on-site data apply at all to your review? We mostly have on-site groundwater data and since that aquifer isn't used as a drinking water source then I'm guessing it isn't useful to you.

Maybe more data from the creek?

Brian Bastek  
Environmental Engineer  
U.S. EPA, Region 4  
RCRA Corrective Action and Permitting Section Resource Conservation and Restoration Division  
61 Forsyth Street, SW  
Atlanta, GA 30303  
404-562-8511  
bastek.brian@epa.gov

-----Original Message-----

From: Bing, Leann  
Sent: Tuesday, May 17, 2016 4:29 PM  
To: Bastek, Brian <Bastek.Brian@epa.gov>  
Subject: RE: Grenada ATSDR health consultation

Okay. The data set is fairly small, so I'm aiming for a month or less. I'd like to review all the current sample data available before any call. Basically, the sampling rounds up to this point. After I complete my draft, then John will review it. We will send it to you for data validation. Then it will go through our clearance.

My limitations are that I'm juggling priorities with other sites. I cover all Brownfield/Land Reuse sites and grants, emergency response, petition sites, and NPL sites. My open Funding Opportunity closes on July 5. The month of July will most focus on grant review.

Good news is that I've started reviewing what I have. This week is fairly quiet and hopefully productive.

Leann Bing  
ATSDR Region IV Representative

Agency for Toxic Substances and Disease Registry (ATSDR)  
61 Forsyth St. SW (9th Floor Mail only)  
Atlanta, GA 30303  
404.562.1784  
404.747.4451 (cell)  
Bing.Leann@epa.gov or KBing@cdc.gov

Office location: 16T50

New Funding Opportunity Available!

CDC-RFA-TS16-1602 Community Health Projects Related to Contamination at Brownfield/Land Reuse Sites

<http://www.grants.gov/web/grants/search-grants.html?keywords=cdc-rfa-ts16-1602>

Application Deadline: July 5, 2016

ATSDR  
<http://www.atsdr.cdc.gov/>

ATSDR Brownfield/Land Reuse Health Initiative ATSDR.LandReuse@cdc.gov  
<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

-----Original Message-----

From: Bastek, Brian  
Sent: Tuesday, May 17, 2016 4:18 PM  
To: Bing, Leann <Bing.Leann@epa.gov>  
Subject: RE: Grenada ATSDR health consultation

You have all the neighborhood data that I have at this point. More will be coming in the near future, but didn't know if you could start without that or not? I think we are looking at all media, but don't have a specific timeline for you. I think because most people don't know how this works they are asking these questions.

Let's maybe talk this week sometime over some of the details.

Thanks.

Brian Bastek  
Environmental Engineer  
U.S. EPA, Region 4  
RCRA Corrective Action and Permitting Section Resource Conservation and Restoration Division  
61 Forsyth Street, SW  
Atlanta, GA 30303  
404-562-8511  
bastek.brian@epa.gov

-----Original Message-----

From: Bing, Leann  
Sent: Tuesday, May 17, 2016 4:11 PM  
To: Bastek, Brian <Bastek.Brian@epa.gov>  
Subject: RE: Grenada ATSDR health consultation

Hi Brian,

Last email I had from you, you were going to send additional data to me. I've been waiting for the data.

What is EPA's timeline for the health consultation? All media? Vapor intrusion only?

Leann Bing  
ATSDR Region IV Representative

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<http://www.grants.gov/web/grants/search-grants.html?keywords=cdc-rfa-ts16-1602>  
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<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

-----Original Message-----

From: Bastek, Brian  
Sent: Tuesday, May 17, 2016 3:35 PM  
To: Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>  
Subject: FW: Grenada ATSDR health consultation

Hi Leann.

Management here was asking about the health consultation and how it is going/how long it will take? I know these things take time, but wanted to try and give them some perspective on the progress.

Hope you are doing well.

Thanks.

Brian Bastek  
Environmental Engineer  
U.S. EPA, Region 4  
RCRA Corrective Action and Permitting Section Resource Conservation and Restoration Division  
61 Forsyth Street, SW  
Atlanta, GA 30303  
404-562-8511  
[bastek.brian@epa.gov](mailto:bastek.brian@epa.gov)

-----Original Message-----

From: Bastek, Brian  
Sent: Tuesday, May 10, 2016 9:10 AM  
To: Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>  
Subject: RE: Grenada ATSDR health consultation

Hi Leann. Yes, please see attached plus I'll have some more from our expanded VI study in a couple of weeks.

Thanks.

Brian Bastek  
Environmental Engineer  
U.S. EPA, Region 4  
RCRA Corrective Action and Permitting Section Resource Conservation and Restoration Division  
61 Forsyth Street, SW  
Atlanta, GA 30303  
404-562-8511  
[bastek.brian@epa.gov](mailto:bastek.brian@epa.gov)

-----Original Message-----

From: Bing, Leann  
Sent: Monday, May 09, 2016 5:32 PM  
To: Bastek, Brian <Bastek.Brian@epa.gov>  
Subject: FW: Grenada ATSDR health consultation

Hi Brian,

Just checking in. I heard through the grapevine that you might have additional data for me to review from Grenada.

Leann Bing  
ATSDR Region IV Representative

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61 Forsyth St. SW (9th Floor Mail only)  
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Bing.Leann@epa.gov or KBing@cdc.gov

Office location: 16T50

New Funding Opportunity Available!

CDC-RFA-TS16-1602 Community Health Projects Related to Contamination at Brownfield/Land Reuse Sites

<http://www.grants.gov/web/grants/search-grants.html?keywords=cdc-rfa-ts16-1602>

Application Deadline: July 5, 2016

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ATSDR Brownfield/Land Reuse Health Initiative ATSDR.LandReuse@cdc.gov

<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

-----Original Message-----

From: Bing, Leann  
Sent: Tuesday, May 03, 2016 9:09 AM  
To: Bastek, Brian <Bastek.Brian@epa.gov>  
Subject: FW: Grenada ATSDR health consultation

Hi Brian,

I hope your trip is going well. This is the most recent data that I have received from you. In your voice mail, you indicated that you might have additional data to send me.

Are there any more sampling events scheduled? When? For which media?

Will you need ATSDR assistance at any future meetings this fiscal year?

We're accepting EPA's request for health consultation. I'll send an official acceptance email soon.

I'm out of the office starting on Wednesday afternoon through Friday. I'm back in the office on Monday, May 9.

Leann Bing

ATSDR Region IV Representative

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Office location: 16T50

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ATSDR Brownfield/Land Reuse Health Initiative ATSDR.LandReuse@cdc.gov  
<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

-----Original Message-----

From: Bastek, Brian  
Sent: Thursday, March 31, 2016 1:47 PM  
To: Wheeler, John <Wheeler.John@epa.gov>  
Cc: Bing, Leann <Bing.Leann@epa.gov>; Casteel, Sue <Casteel.Sue@epa.gov>; Anderson, Meredith <Anderson.Meredith@epa.gov>; Norman, Michael <Norman.Michael@epa.gov>  
Subject: Grenada ATSDR health consultation

Hi John.

Please consider this a formal request for ATSDR's help with a health consultation for the Eastern Heights subdivision in Grenada, MS. Based on your outline below, these are our initial responses. Please contact me with any questions; I've attached some data sets that I think will be useful in your evaluation; more to come later.

- 1) Community is the Eastern Heights subdivision, Grenada, Grenada County, MS located adjacent to the facility. The facility's address is 635 Hwy 332, Grenada, MS 38901.
- 2) Questions to be answered: Are the residents at risk from exposure to site-related contaminants (including TCE and its break-down products, hex chrome, toluene) from all media? Is there an elevated incidence of cancer/non-cancer health effects in the Eastern Heights community? How does long-term exposure to very low levels of TCE and other contaminants in indoor and ambient air affect human health? Also, how does low level concentrations of certain chemicals in river water affect all possible exposure pathways?
- 3) Timeframe: as soon as reasonably possible in order to provide answers to a very concerned community base.
- 4) Brian Bastek will provide any and all applicable data sets, including upcoming data collection in May 2016. Future data sets may also need to be evaluated as part of this consultation.

Brian Bastek  
Environmental Engineer  
U.S. EPA, Region 4  
RCRA Corrective Action and Permitting Section Resource Conservation and Restoration Division  
61 Forsyth Street, SW  
Atlanta, GA 30303  
404-562-8511  
bastek.brian@epa.gov

-----Original Message-----

From: Norman, Michael  
Sent: Friday, March 18, 2016 1:55 PM

**From:** Bing, Leann  
**To:** Rick Gillig  
**Subject:** RE: Grenada ATSDR health consultation  
**Date:** Wednesday, August 23, 2017 3:19:00 PM  
**Attachments:** Eastern Heights Cancer Incidence and Mortality Review - revised.pdf  
FINAL REPORT Grenada Manufacturing Report 17-0050.pdf  
Grenada VI Sampling Investigation Report16-0574.pdf  
1-Facility Interim Air Monitoring Plan FINAL Complete.pdf  
3-Enhanced Pilot Study Work Plan FINAL Complete.pdf

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Hi Rick,

John asked me to enter this request in the request tracker. Is there any additional information I'll need before I do? I'm reading through the 32 page guidance now.

" Please consider this a formal request for ATSDR's help with a health consultation for the Eastern Heights subdivision in Grenada, MS. Based on your outline below, these are our initial responses. Please contact me with any questions; I've attached some data sets that I think will be useful in your evaluation; more to come later.

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- 3) Timeframe: as soon as reasonably possible in order to provide answers to a very concerned community base. (Latest round of sampling (indoor air, ambient air, soil gas) was completed in early August.)
- 4) Brian Bastek will provide any and all applicable data sets, including upcoming data collection in May 2016. Future data sets may also need to be evaluated as part of this consultation."

Currently, the highest exposures to TCE are in the facility. TCE is above our CV but below OSHA limit. The TCE plume is from a previous facility, not part of the current facility process. There's also low levels of TCE in the ambient air in the neighborhood. The plume is also impacting Riverdale Creek, MDEQ issued a water contact advisory. I have data from 2003 to



present. I've attached the recent reports and MSDH's cancer incidence report.

Leann Bing

ATSDR Region IV Representative

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Atlanta, GA 30303

404.562.1784

404.747.4451 (cell)

KBing@cdc.gov

Office location: 16T50

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ATSDR Brownfield/Land Reuse Health Initiative

ATSDR.LandReuse@cdc.gov

<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

-----Original Message-----

From: Wheeler, John

Sent: Wednesday, July 19, 2017 1:49 PM

To: Rick Gillig <rig4@cdc.gov>

Cc: Bing, Leann <Bing.Leann@epa.gov>

Subject: FW: Grenada ATSDR health consultation

Rick,

This was the request that came from the RCRA program. We shared it with HQ at the time and received an OK. But you are right that we never entered it into the tracker. I probably didn't know what the tracker was in March of 2016.

Leann is the lead. I am backing her up, esp the tox stuff.

John

-----Original Message-----

From: Bastek, Brian

Sent: Thursday, March 31, 2016 1:47 PM

To: Wheeler, John <Wheeler.John@epa.gov>

Cc: Bing, Leann <Bing.Leann@epa.gov>; Casteel, Sue <Casteel.Sue@epa.gov>; Anderson, Meredith <Anderson.Meredith@epa.gov>; Norman, Michael <Norman.Michael@epa.gov>

Subject: Grenada ATSDR health consultation

Hi John.

Please consider this a formal request for ATSDR's help with a health consultation for the Eastern Heights subdivision in Grenada, MS. Based on your outline below, these are our initial responses. Please contact me with any questions; I've attached some data sets that I think will be useful in your evaluation; more to come later.

1) Community is the Eastern Heights subdivision, Grenada, Grenada County, MS located adjacent to the facility. The facility's address is 635 Hwy 332, Grenada, MS 38901.

2) Questions to be answered: Are the residents at risk from exposure to site-related contaminants (including TCE and its break-down products, hex chrome, toluene) from all media? Is there an elevated incidence of cancer/non-cancer health effects in the Eastern Heights community? How does long-term exposure to very low levels of TCE and other contaminants in indoor and ambient air affect human health? Also, how does low level concentrations of certain chemicals in river water affect all possible exposure pathways?

3) Timeframe: as soon as reasonably possible in order to provide answers to a very concerned community base.

4) Brian Bastek will provide any and all applicable data sets, including upcoming data collection in May 2016. Future data sets may also need to be evaluated as part of this consultation.

Brian Bastek

Environmental Engineer

U.S. EPA, Region 4

RCRA Corrective Action and Permitting Section Resource Conservation and Restoration Division

61 Forsyth Street, SW

Atlanta, GA 30303

404-562-8511

[bastek.brian@epa.gov](mailto:bastek.brian@epa.gov)

-----Original Message-----

From: Norman, Michael

Sent: Friday, March 18, 2016 1:55 PM

To: Anderson, Meredith <[Anderson.Meredith@epa.gov](mailto:Anderson.Meredith@epa.gov)>; Bastek, Brian <[Bastek.Brian@epa.gov](mailto:Bastek.Brian@epa.gov)>

Subject: FW: ATSDR health consultation

Brian and Meredith,

Please draft a request for a health consultation for Grenada using John's outline below. Coordinate with Glenn's group if necessary. Thanks.

Michael A. Norman, Chief

RCRA Cleanup and Brownfields Branch

U. S. EPA Region 4

404-562-8792

-----Original Message-----

From: John Wheeler [REDACTED]

Sent: Friday, March 18, 2016 9:32 AM

To: Norman, Michael <Norman.Michael@epa.gov>; kgb0@cdc.gov

Subject: ATSDR health consultation

Mike,

I got some better definition on how to send in a request to ATSDR for a Health Consultation.

The request should

- 1) Define the location of the community/site
- 2) Define what questions you want ATSDR to answer (e.g., Does TCE exposure in this community pose a health risk?)
- 3) What kind of time-line you are needing
- 4) List data sets available that can help ATSDR make conclusions.

The request can be as informal as an e-mail to me or to my Division Director, Ileana Arias. Or as formal as a letter to our director (Patrick Breysse) from your RA -- I don't think this is necessary but is an option.

John

Director, Region IV ATSDR

PS please use my work email Wheeler.John@epa.gov The above is my personal email.

**From:** Gillig, Richard (Rick) (ATSDR/DCHI/CB)  
**To:** Bing, Leann; Wheeler, John  
**Subject:** RE: Grenada ATSDR health consultation  
**Date:** Thursday, August 24, 2017 8:33:53 AM

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For the scoping and request tracker meetings please be ready to address the following questions:

- Why are we working on this site?
- How will public health be improved as a result of our involvement?
- What will change as a result of our involvement?
- Will EPA take any additional actions that they would not have taken without our input?

These are questions that Ileana tends to ask to make sure that we use our resources appropriately.

Thanks

**From:** Bing, Kathryn (CDC epa.gov)  
**Sent:** Wednesday, August 23, 2017 4:30 PM  
**To:** Gillig, Richard (Rick) (ATSDR/DCHI/CB) ; DePasquale, Annmarie (ATSDR/DCHI/OD)  
**Cc:** Wheeler, John (ATSDR/DCHI/CB)  
**Subject:** FW: Grenada ATSDR health consultation

Hi Rick and Annmarie,

We'd like to have an update site scoping meeting for Grenada Manufacturing in Grenada, MS. We had a very brief site scoping meeting when we first received the request in March 2016. We'd like update you with the current conditions.

When are you available? I'm open on August 28 and 29 next week or September 5-7 the following week.

**Leann Bing**

ATSDR Region IV Representative

**Agency for Toxic Substances and Disease Registry (ATSDR)**

61 Forsyth St. SW (9<sup>th</sup> Floor Mail only)

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404.562.1784

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Office location: 16T50

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<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

---

**From:** Bing, Leann  
**Sent:** Wednesday, August 23, 2017 3:19 PM  
**To:** Rick Gillig <[rig4@cdc.gov](mailto:rig4@cdc.gov)>  
**Subject:** RE: Grenada ATSDR health consultation

Hi Rick,

John asked me to enter this request in the request tracker. Is there any additional information I'll need before I do? I'm reading through the 32 page guidance now.

" Please consider this a formal request for ATSDR's help with a health consultation for the Eastern

Heights subdivision in Grenada, MS. Based on your outline below, these are our initial responses. Please contact me with any questions; I've attached some data sets that I think will be useful in your evaluation; more to come later.

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4) Brian Bastek will provide any and all applicable data sets, including upcoming data collection in May 2016. Future data sets may also need to be evaluated as part of this consultation."

Currently, the highest exposures to TCE are in the facility. TCE is above our CV but below OSHA limit. The TCE plume is from a previous facility, not part of the current facility process. There's also low levels of TCE in the ambient air in the neighborhood. The plume is also impacting Riverdale Creek, MDEQ issued a water contact advisory. I have data from 2003 to present. I've attached the recent reports and MSDH's cancer incidence report.

Leann Bing

ATSDR Region IV Representative

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ATSDR Brownfield/Land Reuse Health Initiative

[ATSDR.LandReuse@cdc.gov](mailto:ATSDR.LandReuse@cdc.gov)

<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

**From:** Adams, Glenn  
**To:** Newman, Keriema; Koporec, Kevin; Brackin, Bruce; Bing, Leann  
**Cc:** Norman, Michael; Anderson, Meredith; Bastek, Brian; Holtzclaw, Brian; Bentkowski, Ben  
**Subject:** RE: Grenada Employee Notification  
**Date:** Tuesday, January 17, 2017 1:43:55 PM

---

The question from earlier e-mail is: **I did have a question from someone here. How does EPA action number relate to or play with, if you would, to the current OSHA's enforcement reg of 200 mg/m3 or NIOSH recommendation of 2 mg/m3? Just curious.**

EPA's screening levels and action levels have no real connection to any OSHA values. I'm not sure what kind of health (toxicity) data OSHA used for their values, but EPA's values are based on the toxicity data available in EPA's IRIS (integrated risk information system). For TCE, the screening level is based on industrial/commercial exposures at a  $1 \times 10^{-6}$  cancer risk level using a cancer slope factor. The action level is based on industrial/commercial exposures at a hazard quotient (HQ) of 1 (sensitive sub-population) and 3 (non-sensitive population) using a reference dose. The HQs are both less than a  $1 \times 10^{-4}$  cancer risk level so they are within EPA's risk range.

The other issue that may be part of the question is EPA regulatory authority vs OSHA regulatory authority. To be clear, I'm not a lawyer, so ultimately they will have to answer that question. To my knowledge, the simplistic answer (if there is one) is that the TCE is a result of an environmental exposure due to a past environmental release.

I hope this helps.  
Glenn

Glenn Adams, Chief  
Scientific Support Section  
Reg 4 Superfund Division  
404-562-8771

**From:** Newman, Keriema  
**Sent:** Tuesday, January 17, 2017 1:27 PM  
**To:** Koporec, Kevin <Koporec.Kevin@epa.gov>; Adams, Glenn <Adams.Glenn@epa.gov>  
**Cc:** Norman, Michael <Norman.Michael@epa.gov>; Anderson, Meredith <Anderson.Meredith@epa.gov>; Bastek, Brian <Bastek.Brian@epa.gov>; Holtzclaw, Brian <Holtzclaw.Brian@epa.gov>  
**Subject:** FW: Grenada Employee Notification  
**Importance:** High

Good afternoon Kevin/Glenn

Can either of you all help us with responding to the question Bruce Brackin received? I have highlighted it below.

THANKS!

**From:** Bing, Leann  
**Sent:** Tuesday, January 17, 2017 1:23 PM  
**To:** Holtzclaw, Brian <[Holtzclaw.Brian@epa.gov](mailto:Holtzclaw.Brian@epa.gov)>  
**Cc:** Bastek, Brian <[Bastek.Brian@epa.gov](mailto:Bastek.Brian@epa.gov)>; Newman, Keriema <[Newman.Keriema@epa.gov](mailto:Newman.Keriema@epa.gov)>  
**Subject:** FW: Grenada Employee Notification

A question for EPA...

**Leann Bing**  
ATSDR Region IV Representative

**Agency for Toxic Substances and Disease Registry (ATSDR)**

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<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

**From:** Brackin, Bruce [<mailto:Bruce.Brackin@msdh.ms.gov>]  
**Sent:** Tuesday, January 17, 2017 1:11 PM  
**To:** Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>  
**Subject:** RE: Grenada Employee Notification

Leann

I did have a question from someone here. How does EPA action number relate to or play with, if you would, to the current OSHA's enforcement reg of 200 mg/m3 or NIOSH recommendation of 2 mg/m3? Just curious.

Thanks - Bruce



**From:** Bing, Leann [<mailto:Bing.Leann@epa.gov>]  
**Sent:** Tuesday, January 17, 2017 11:21 AM  
**To:** Brackin, Bruce  
**Subject:** Re: Grenada Employee Notification

Same here.

**Leann Bing**

ATSDR Region IV Representative

**Agency for Toxic Substances and Disease Registry (ATSDR)**

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Atlanta, GA 30303

404.562.1784

404.747.4451 (cell)

404.562.1788 (ATSDR Region IV On-Call)

[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov) or [KBing@cdc.gov](mailto:KBing@cdc.gov)

Office location: 16T50

**ATSDR**

<http://www.atsdr.cdc.gov/>

**ATSDR Brownfield/Land Reuse Health Initiative**

[ATSDR.LandReuse@cdc.gov](mailto:ATSDR.LandReuse@cdc.gov)

<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

On Jan 17, 2017, at 11:57 AM, Brackin, Bruce <[Bruce.Brackin@msdh.ms.gov](mailto:Bruce.Brackin@msdh.ms.gov)> wrote:

Thanks Leann

So far so good. No calls here or at PCC.

Bruce

**From:** Bing, Leann [<mailto:Bing.Leann@epa.gov>]  
**Sent:** Tuesday, January 17, 2017 10:46 AM  
**To:** Brackin, Bruce  
**Cc:** Byers, Paul; [jzw1@cdc.gov](mailto:jzw1@cdc.gov); Holtzclaw, Brian; Newman, Keriema  
**Subject:** Grenada Employee Notification

Hi Bruce,

Attached is the employee notification distributed.

**Leann Bing**

ATSDR Region IV Representative

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<http://www.atsdr.cdc.gov/>

**ATSDR Brownfield/Land Reuse Health Initiative**

[ATSDR.LandReuse@cdc.gov](mailto:ATSDR.LandReuse@cdc.gov)

<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

**From:** Holtzclaw, Brian

**Sent:** Tuesday, January 17, 2017 11:42 AM

**To:** Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>

**Cc:** Newman, Keriema <[Newman.Keriema@epa.gov](mailto:Newman.Keriema@epa.gov)>

**Subject:** FW: Draft Employee Notification

This is the notification that Grenada posted at their time-clock area...a memo from them and EPA that was posted late Thursday I believe. Our FOIA reported nothing was exempt here. Brian

**From:** Bing, Leann

**Sent:** Tuesday, January 17, 2017 9:28 AM

**To:** Holtzclaw, Brian <[Holtzclaw.Brian@epa.gov](mailto:Holtzclaw.Brian@epa.gov)>

**Subject:** RE: Draft Employee Notification

Hi Brian,

Do you have a final copy of all the employee notifications that I can share with MSDH?

**Leann Bing**

ATSDR Region IV Representative

**Agency for Toxic Substances and Disease Registry (ATSDR)**

61 Forsyth St. SW (9<sup>th</sup> Floor Mail only)  
Atlanta, GA 30303  
404.562.1784  
404.747.4451 (cell)  
KBing@cdc.gov

Office location: 16T50

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<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

**From:** Holtzclaw, Brian

**Sent:** Thursday, January 12, 2017 8:22 AM

**To:** Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>

**Subject:** Draft Employee Notification

**From:** Brackin, Bruce  
**To:** [Adams, Glenn](#); [Newman, Keriema](#); [Koporec, Kevin](#); [Bing, Leann](#)  
**Cc:** [Norman, Michael](#); [Anderson, Meredith](#); [Bastek, Brian](#); [Holtzclaw, Brian](#); [Bentkowski, Ben](#)  
**Subject:** RE: Grenada Employee Notification  
**Date:** Tuesday, January 17, 2017 2:07:30 PM

---

Hi Glenn

That helps. I know the OSHA number has to be ancient. I think the question was mostly about the other issue you mentioned and not how the action level was derived but who plays with what. As you said will have to be looked at/ augured by folks other than us but the 'past' vs. current use makes sense to me.

Thanks – Bruce

**From:** Adams, Glenn [<mailto:Adams.Glenn@epa.gov>]  
**Sent:** Tuesday, January 17, 2017 12:44 PM  
**To:** Newman, Keriema; Koporec, Kevin; Brackin, Bruce; Bing, Leann  
**Cc:** Norman, Michael; Anderson, Meredith; Bastek, Brian; Holtzclaw, Brian; Bentkowski, Ben  
**Subject:** RE: Grenada Employee Notification

The question from earlier e-mail is: **I did have a question from someone here. How does EPA action number relate to or play with, if you would, to the current OSHA's enforcement reg of 200 mg/m3 or NIOSH recommendation of 2 mg/m3? Just curious.**

EPA's screening levels and action levels have no real connection to any OSHA values. I'm not sure what kind of health (toxicity) data OSHA used for their values, but EPA's values are based on the toxicity data available in EPA's IRIS (integrated risk information system). For TCE, the screening level is based on industrial/commercial exposures at a  $1 \times 10^{-6}$  cancer risk level using a cancer slope factor. The action level is based on industrial/commercial exposures at a hazard quotient (HQ) of 1 (sensitive sub-population) and 3 (non-sensitive population) using a reference dose. The HQs are both less than a  $1 \times 10^{-4}$  cancer risk level so they are within EPA's risk range.

The other issue that may be part of the question is EPA regulatory authority vs OSHA regulatory authority. To be clear, I'm not a lawyer, so ultimately they will have to answer that question. To my knowledge, the simplistic answer (if there is one) is that the TCE is a result of an environmental exposure due to a past environmental release.

I hope this helps.  
Glenn

Glenn Adams, Chief  
Scientific Support Section  
Reg 4 Superfund Division  
404-562-8771

**From:** Newman, Keriema

**Sent:** Tuesday, January 17, 2017 1:27 PM

**To:** Koporec, Kevin <Koporec.Kevin@epa.gov>; Adams, Glenn <Adams.Glenn@epa.gov>

**Cc:** Norman, Michael <Norman.Michael@epa.gov>; Anderson, Meredith <Anderson.Meredith@epa.gov>; Bastek, Brian <Bastek.Brian@epa.gov>; Holtzclaw, Brian <Holtzclaw.Brian@epa.gov>

**Subject:** FW: Grenada Employee Notification

**Importance:** High

Good afternoon Kevin/Glenn

Can either of you all help us with responding to the question Bruce Brackin received? I have highlighted it below.

THANKS!

**From:** Bing, Leann

**Sent:** Tuesday, January 17, 2017 1:23 PM

**To:** Holtzclaw, Brian <Holtzclaw.Brian@epa.gov>

**Cc:** Bastek, Brian <Bastek.Brian@epa.gov>; Newman, Keriema <Newman.Keriema@epa.gov>

**Subject:** FW: Grenada Employee Notification

A question for EPA...

**Leann Bing**

ATSDR Region IV Representative

**Agency for Toxic Substances and Disease Registry (ATSDR)**

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[ATSDR.LandReuse@cdc.gov](mailto:ATSDR.LandReuse@cdc.gov)

<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

**From:** Brackin, Bruce [<mailto:Bruce.Brackin@msdh.ms.gov>]  
**Sent:** Tuesday, January 17, 2017 1:11 PM  
**To:** Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>  
**Subject:** RE: Grenada Employee Notification

Leann

I did have a question from someone here. How does EPA action number relate to or play with, if you would, to the current OSHA's enforcement reg of 200 mg/m3 or NIOSH recommendation of 2 mg/m3? Just curious.

Thanks - Bruce

**From:** Bing, Leann [<mailto:Bing.Leann@epa.gov>]  
**Sent:** Tuesday, January 17, 2017 11:21 AM  
**To:** Brackin, Bruce  
**Subject:** Re: Grenada Employee Notification

Same here.

**Leann Bing**

ATSDR Region IV Representative

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61 Forsyth St. SW (9<sup>th</sup> Floor Mail only)

Atlanta, GA 30303

404.562.1784

404.747.4451 (cell)

404.562.1788 (ATSDR Region IV On-Call)

[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov) or [KBing@cdc.gov](mailto:KBing@cdc.gov)

Office location: 16T50

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<http://www.atsdr.cdc.gov/>

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[ATSDR.LandReuse@cdc.gov](mailto:ATSDR.LandReuse@cdc.gov)

<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

On Jan 17, 2017, at 11:57 AM, Brackin, Bruce <[Bruce.Brackin@msdh.ms.gov](mailto:Bruce.Brackin@msdh.ms.gov)> wrote:

Thanks Leann

So far so good. No calls here or at PCC.

Bruce

**From:** Bing, Leann [<mailto:Bing.Leann@epa.gov>]  
**Sent:** Tuesday, January 17, 2017 10:46 AM  
**To:** Brackin, Bruce  
**Cc:** Byers, Paul; [jzw1@cdc.gov](mailto:jzw1@cdc.gov); Holtzclaw, Brian; Newman, Keriema  
**Subject:** Grenada Employee Notification

Hi Bruce,

Attached is the employee notification distributed.

**Leann Bing**

ATSDR Region IV Representative

**Agency for Toxic Substances and Disease Registry (ATSDR)**

61 Forsyth St. SW (9<sup>th</sup> Floor Mail only)

Atlanta, GA 30303

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Office location: 16T50

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<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

**From:** Holtzclaw, Brian

**Sent:** Tuesday, January 17, 2017 11:42 AM

**To:** Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>

**Cc:** Newman, Keriema <[Newman.Keriema@epa.gov](mailto:Newman.Keriema@epa.gov)>

**Subject:** FW: Draft Employee Notification

This is the notification that Grenada posted at their time-clock area...a memo from them and EPA that was posted late Thursday I believe. Our FOIA reported nothing was exempt here. Brian

**From:** Bing, Leann  
**Sent:** Tuesday, January 17, 2017 9:28 AM  
**To:** Holtzclaw, Brian <[Holtzclaw.Brian@epa.gov](mailto:Holtzclaw.Brian@epa.gov)>  
**Subject:** RE: Draft Employee Notification

Hi Brian,

Do you have a final copy of all the employee notifications that I can share with MSDH?

**Leann Bing**  
ATSDR Region IV Representative

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<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

**From:** Holtzclaw, Brian  
**Sent:** Thursday, January 12, 2017 8:22 AM  
**To:** Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>  
**Subject:** Draft Employee Notification



**From:** Bing, Leann  
**To:** Johnston, Shelby  
**Subject:** Re: Rockwell Grenada  
**Date:** Wednesday, March 14, 2018 12:15:44 PM

---

Hi Shelby,

Since all the cancer data is stored at the state's cancer registry, we are working with the MS Cancer Registry for an in-depth review of the area.

I don't have any specifics at this time.

Feel free to call if you have any additional questions.

As always, feel free to refer anybody with health questions to me. My contact info is below.

Leann Bing  
ATSDR  
KBing@cdc.gov  
404.562.1784 (office)  
404.747.4451 (cell)  
404.562.1788 (Region 4 On Call)

> On Mar 14, 2018, at 10:58 AM, Johnston, Shelby <Johnston.Shelby@epa.gov> wrote:

>

> Leann,

> Sorry for the delay in getting back with you after our public meeting. Sue did a great job and from all accounts the meeting went better than previous meetings. I hope the wedding stuff went well!

> I wanted to touch base with you on the community health study for eastern heights and possibly greater Grenada if needed for statistical analysis. We are in the community now doing interviews and this is going to be a big question for us to address.

> Shelby

>

> Sent from my iPhone

**From:** Brackin, Bruce  
**To:** [Bing, Leann](mailto:Bing,Leann)  
**Subject:** RE: Rockwell Grenada Announce Upcoming June and July Sampling  
**Date:** Tuesday, June 05, 2018 11:25:44 AM

---

Leann

I'm getting the small addendum done for the updated neighborhood report for you. They were averaging about 1 death and 1 cancer case/year and that still holds. We can't really do much but crude rates since we lack any age-specific info on the population makeup. Hopefully I'll have Paul's review back in a day or so and we'll send it along.

Thanks - Bruce

**From:** Bing, Leann [<mailto:Bing.Leann@epa.gov>]  
**Sent:** Monday, June 04, 2018 10:19 AM  
**To:** Brackin, Bruce  
**Subject:** FW: Rockwell Grenada Announce Upcoming June and July Sampling

FYI. EPA sampling in Grenada

**Leann Bing**

ATSDR Region IV Representative

**Agency for Toxic Substances and Disease Registry (ATSDR)**

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<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

**From:** Ajanaku, Abena [<mailto:ajanaku.abena@epa.gov>]  
**Sent:** Thursday, May 24, 2018 5:22 PM  
**Subject:** Rockwell Grenada Announce Upcoming June and July Sampling

Good Afternoon, this email is to inform you about the upcoming sampling events in June and July in

Eastern Heights. A postcard with additional information was placed in the mail today to the public in Grenada. Samples of that postcard are attached to this email. If you have questions please call Shelby Johnston at (404)562-8287 or Abena Ajanaku at (404) 562-8834.

Regards

Abena

**Community Involvement Coordinator**  
**Superfund Division**  
**Enforcement & Community Engagement Branch**  
**Sam Nunn Atlanta Federal Center**  
**61 Forsyth Street, SW**  
**Atlanta, GA 30303**  
**(O) 404-562-8834**  
**Cell 404-617-6931**  
**FAX 404-562-8842**

**From:** Bing, Leann  
**To:** Johnston, Shelby  
**Subject:** RE: Rockwell International - Grenada  
**Date:** Thursday, May 03, 2018 4:20:00 PM

---

Hi Shelby,

My travel to Grenada has been approved.

MSDH: I've asked Bruce Brackin of MSDH if he's available. No response, so far. Bruce is semi-retired and working part-time at MSDH.

Cancer and other health conditions: I've also asked MSDH to update their Cancer Incidence report as part of our public health assessment. I'll also pull any available disease data for the area. The small size of the Eastern Height Neighborhood is challenging for incidence evaluations.

PHA: The PHA is going slowly. All of the PRP's environmental reports under are in PDF format. Data spreadsheets for each report would definitely speed up the data evaluation.

Please feel free to direct any health related questions to me.

**Leann Bing**

ATSDR Region IV Representative

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[ATSDR.LandReuse@cdc.gov](mailto:ATSDR.LandReuse@cdc.gov)

<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

**From:** Johnston, Shelby

**Sent:** Wednesday, May 02, 2018 4:38 PM  
**To:** Bing, Leann <Bing.Leann@epa.gov>  
**Subject:** RE: Rockwell International - Grenada

Leann,

We have secured a location for the availability sessions to be held in Grenada, MS on May 15<sup>th</sup>. We have a session scheduled for 12-3 and one from 5-8.

There are quite a few community members that have health questions and want to know what type of support is available through ATSDR. If you think we also need someone from the state health dept., I would be happy to request their attendance.

How is the health consult for the area coming along? I had a question from someone in the community as to whether or not that effort would include cataloging the deaths and causes in the area to see if there is a correlation. I am sorry to say that I don't know the answer but I would assume so.

Thanks,  
Shelby

**From:** Bing, Leann  
**Sent:** Wednesday, May 2, 2018 4:17 PM  
**To:** Johnston, Shelby <[Johnston.Shelby@epa.gov](mailto:Johnston.Shelby@epa.gov)>  
**Subject:** Rockwell International - Grenada

Shelby,

Just checking in. Any news on Rockwell in Grenada?

**Leann Bing**  
ATSDR Region IV Representative

**Agency for Toxic Substances and Disease Registry (ATSDR)**

61 Forsyth St. SW (9<sup>th</sup> Floor Mail only)

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<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

**From:** [Johnston, Shelby](#)  
**To:** [Bing, Leann](#)  
**Subject:** RE: Rockwell International - Grenada  
**Date:** Friday, May 04, 2018 12:01:34 PM

---

Leann,

I can definitely ask for spreadsheets from the PRP group but no telling if they will be open to providing those. Thank you for touching base with Bruce. Let me know

Thanks,

Shelby

**From:** Bing, Leann  
**Sent:** Thursday, May 3, 2018 4:20 PM  
**To:** Johnston, Shelby <[Johnston.Shelby@epa.gov](mailto:Johnston.Shelby@epa.gov)>  
**Subject:** RE: Rockwell International - Grenada

Hi Shelby,

My travel to Grenada has been approved.

MSDH: I've asked Bruce Brackin of MSDH if he's available. No response, so far. Bruce is semi-retired and working part-time at MSDH.

Cancer and other health conditions: I've also asked MSDH to update their Cancer Incidence report as part of our public health assessment. I'll also pull any available disease data for the area. The small size of the Eastern Height Neighborhood is challenging for incidence evaluations.

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Please feel free to direct any health related questions to me.

**Leann Bing**  
ATSDR Region IV Representative

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<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

**From:** Johnston, Shelby

**Sent:** Wednesday, May 02, 2018 4:38 PM

**To:** Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>

**Subject:** RE: Rockwell International - Grenada

Leann,

We have secured a location for the availability sessions to be held in Grenada, MS on May 15<sup>th</sup>. We have a session scheduled for 12-3 and one from 5-8.

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Thanks,

Shelby

**From:** Bing, Leann

**Sent:** Wednesday, May 2, 2018 4:17 PM

**To:** Johnston, Shelby <[Johnston.Shelby@epa.gov](mailto:Johnston.Shelby@epa.gov)>

**Subject:** Rockwell International - Grenada

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**Leann Bing**

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<http://www.atsdr.cdc.gov/sites/brownfields/index.html>



**From:** Bing, Leann  
**To:** Johnston, Shelby  
**Subject:** RE: Rockwell International - Grenada  
**Date:** Wednesday, May 09, 2018 3:57:00 PM

---

Hi Shelby,

I'm looking forward to the availability sessions on Tuesday. I'm driving down on Monday, coming back on Wednesday. I'm staying at the Hampton.

I haven't heard from Bruce Brackin at MSDH. I assume that they are not coming. In Mississippi, we usually are the lead on the high profile sites with support from MSDH. MSDH takes the lead on the low profile sites with our support.

I'm out of the office for the rest of the week due to death in the family. I'll be back in town on Saturday, if you need to contact me for anything.

My contact info is below.

**Leann Bing**

ATSDR Region IV Representative

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<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

**From:** Johnston, Shelby

**Sent:** Friday, May 04, 2018 12:02 PM

**To:** Bing, Leann <Bing.Leann@epa.gov>

**Subject:** RE: Rockwell International - Grenada

Leann,

I can definitely ask for spreadsheets from the PRP group but no telling if they will be open to providing those. Thank you for touching base with Bruce. Let me know

Thanks,

Shelby

**From:** Bing, Leann

**Sent:** Thursday, May 3, 2018 4:20 PM

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**Subject:** RE: Rockwell International - Grenada

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**To:** Bing, Leann <[Bing.Leann@epa.gov](mailto:Bing.Leann@epa.gov)>

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**Sent:** Wednesday, May 2, 2018 4:17 PM

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**Leann Bing**

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<http://www.atsdr.cdc.gov/sites/brownfields/index.html>



**From:** Brackin, Bruce  
**To:** [Bing, Leann](mailto:Bing,Leann)  
**Subject:** RE: Rockwell International - Grenada  
**Date:** Tuesday, May 15, 2018 12:34:04 PM

---

Leann

Been out for family deal and just catching up.

Since you meetings are today, doubt if I'll be there! We'll be glad to take any questions you might get. I'm guessing you are on the road right now.

Should be no problem on updating the cancer and overall mortality stats in the little report we did (mid 2015 – time flies) I'll get a request in to vital records and the cancer registry. I'll see if the crude population estimates may have change but I'd guess very little if any. If anyone does a population count as part of the PHA for the neighborhood please let me know. My numbers were based on rooftop count times the average household size for the census tract and/or block groups.

We've not heard anything from our water supply folks so that probably means no news is good news.

Bruce

**From:** Bing, Leann [<mailto:Bing.Leann@epa.gov>]  
**Sent:** Wednesday, May 02, 2018 3:52 PM  
**To:** Brackin, Bruce  
**Subject:** FW: Rockwell International - Grenada

Hi Bruce,

I hope all is well. The next Grenada public availability session is on May 15 from 12-3 pm and 5-8 pm. Are you available to attend?

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Do you have time for a quick call tomorrow? I'm free after 1 pm EDT tomorrow.

**Leann Bing**  
ATSDR Region IV Representative

**Agency for Toxic Substances and Disease Registry (ATSDR)**

th





61 Forsyth St. SW (9 Floor Mail only)  
Atlanta, GA 30303  
404.562.1784  
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[ATSDR.LandReuse@cdc.gov](mailto:ATSDR.LandReuse@cdc.gov)

<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

**From:** Johnston, Shelby

**Sent:** Wednesday, May 02, 2018 4:38 PM

**To:** Bing, Leann <Bing.Leann@epa.gov>

**Subject:** RE: Rockwell International - Grenada

Leann,

We have secured a location for the availability sessions to be held in Grenada, MS on May 15<sup>th</sup>. We have a session scheduled for 12-3 and one from 5-8.

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Thanks,  
Shelby

**From:** Bing, Leann

**Sent:** Wednesday, May 2, 2018 4:17 PM

**To:** Johnston, Shelby <[Johnston.Shelby@epa.gov](mailto:Johnston.Shelby@epa.gov)>

**Subject:** Rockwell International - Grenada

Shelby,

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**Leann Bing**

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**From:** Bing, Leann  
**To:** Brackin, Bruce  
**Subject:** Re: Rockwell International - Grenada  
**Date:** Tuesday, May 15, 2018 12:42:13 PM

---

Thanks, Bruce. Yes, I'm at the building for the sessions now. I'll send you an update when it is over. I'll try to get you a population count.

Leann Bing  
ATSDR  
[KBing@cdc.gov](mailto:KBing@cdc.gov)  
404.562.1784 (office)  
404.747.4451 (cell)  
404.562.1788 (Region 4 On Call)

On May 15, 2018, at 11:34 AM, Brackin, Bruce <[Bruce.Brackin@msdh.ms.gov](mailto:Bruce.Brackin@msdh.ms.gov)> wrote:

Leann

Been out for family deal and just catching up.

Since you meetings are today, doubt if I'll be there! We'll be glad to take any questions you might get. I'm guessing you are on the road right now.

Should be no problem on updating the cancer and overall mortality stats in the little report we did (mid 2015 – time flies) I'll get a request in to vital records and the cancer registry. I'll see if the crude population estimates may have change but I'd guess very little if any. If anyone does a population count as part of the PHA for the neighborhood please let me know. My numbers were based on rooftop count times the average household size for the census tract and/or block groups.

We've not heard anything from our water supply folks so that probably means no news is good news.

Bruce

**From:** Bing, Leann [<mailto:Bing.Leann@epa.gov>]  
**Sent:** Wednesday, May 02, 2018 3:52 PM  
**To:** Brackin, Bruce  
**Subject:** FW: Rockwell International - Grenada

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Rockwell International Wheel & Trim Notes

Last Updated: 05.15.2018

**Community Health Concerns**

██████████ – Concerned about gardening. He has been told that his soil is contaminated and he should not garden. (EPA plans to sample soil in his yard in May-August 2018.)

██████████ (6/225 – Nicar 2016)

██████████ (6/225 – Nicar 2016)

██████████ – Unidentified (Nicar 2016)

“Felicia Willis family moved to Eastern Heights subdivision in 1980. Her sister, Belinda Kincaid, who was first diagnosed with uterine cancer when she was 24, then breast cancer two decades later.” (Clarion Ledger, Superfund in Grenada, 2/8/2018)

For 225 residents, 68 cases of cancer. (Clarion Ledger, 4/2/2016)

Christopher Williams, 1985 – 13 years old, liver disease. Died in 1989. Mr. Jerry Williams worked at the plant (1970-1975). Transported chemicals from plant to dumping sites north of plant and on Moose Lodge Road. Currently, Mr. Williams is on dialysis. Daughter had tumors, hysterectomy at young age. Ms. Williams – respiratory infections. (Clarion Ledger, 4/2/2016)

Toxicologist retained by attorneys – community is affected by cancer at a rate of 3 times the national average. (Clarion Ledger, 4/2/2016)

Shay Harris – cysts on ovaries, tumor on spine. Parents lived in neighborhood since she was 9. (Community spokeswoman.) In childhood, saw odd green substance in backyard, possible runoff from plant.

MW-20 (oldest MW next to neighborhood)

1992 18 ppb TCE

1993-2003 Not tested

2012 400 ppb TCE

Melissa Kincaid – Lived in home since 1981, adjacent to plant. Diagnosed with uterine cancer at 24 years old (1985). Currently battling breast cancer (2004). Her mother died of kidney disease in 1998. 8 dogs died over years after “skin falling off”. (Clarion Ledger, 4/2/2016)

Johnnie Williams

Helen McKinney – Worked in plant 30 years. Reported women working at plant died of some type of cancer. Two living. (Clarion Ledger, 4/10/2017)

### **Political interest**

MS Attorney General Jim Hood (Grenada and Water Valley – Groundwater contamination and vapor intrusion under Yalobusha County Hospital, nursing home, health clinics, North MS Mental Health Foundation, city/county/US COE offices -> Otoucalofa Creek (Clarion Ledger, 4/10/2017)

2<sup>nd</sup> District US Rep. Bennie Thompson

Grenada City Councilman Lewis Johnson

Attorney Reid Stanford

### **Timeline**

**1960** Plant built

**1960-mid 1970s** Potentially untreated waste water discharged to Riverdale Creek, which discharges into Yalobusha River

**1961-1967** Facility operated unlined landfill.

**1967-1984** Facility disposed of waste at non-facility owned, off-site landfill (Rockwell International Site No 2 landfill)

**1982** Facility petitioned for delisting of sludge disposed in sludge lagoon. (? If petition accepted. Facility treated sludge as if delisted (Textron 1989))

**1987** – Facility conducted asbestos survey and removed some asbestos insulation.

**1961?-1989** 250 tons/year of solvents (TCE) that are not covered by specific air permits

**January 1989** EPA (NUS) investigation of soil in and around the landfill, surface water samples in the general vicinity of the landfill which lies within a swampy area, and water samples from the planes onsite production wells. (Textron 1989, p. 17) Off-site landfill investigation?

**1966-1967** Buffing compound disposed in Moose Lodge Road Disposal Area (Property owned by International Paper). (ArvinMeritor 01/12/2006, p. 1)

**February 2003** Facility conducted indoor air sampling for 11 VOCs found in TCE and Toluene plume under NW corner of main plant building. (TCE, 7.9 ppb, Zone B).

**2003** EPA approves Chrome Plating Line Closure Plan. MW-23 & MW-24 < MCL. Soil hexavalent Chromium < 64 mg/kg. MW-24: Toluene(140,00 ug/L), Trichloroethene (9,750 ug/L), Vinyl Chloride

(3,180 ug/L), and cis 1,2-Dichloroethene (19,300 ug/L). Three concrete lined chrome pits filled and capped by 2004.

**April 2003** Draft Facility Indoor Air Monitoring Report

**July 2003** Buffing material on Moose Lodge Road Disposal Area, 2.8 acres, 100,000 feet with thickness 0.1-2 feet. Buffing: TCE 0.017-0.180 mg/kg; soil: TCE ND – 2.3 mg/kg. Lead Agency: MS DEQ. (ArvinMeritor 01/12/2006)

**December 2004** Facility Indoor Air Monitoring Report. Sampling events 2/17/2003 & 8/18/2004. Zone A (Offices/Breakroom/Restrooms), Zone B (Production Area), Zone C (Basement). 2003 (B1 TCE 7.9 ppbv). 2004 (B1 Methylene chloride 69 ppbv; B3 TCE 8.1 ppbv)

**2004** Buffing operations terminated. Zone C Basement restricted. Basement area often flooded. Mold and mildew. (Brown and Caldwell 2009, p. 2-2)

**January 12, 2006** Final Waste Material Removal Completion Report for ArvinMeritor, Former Moose Lodge Road Disposal Area. Removed buffing material, soil, and tree roots. Non-hazardous disposal.

**2009** Brown and Caldwell, Indoor Air Monitoring Report, ICE Industries (Formerly Grenada Manufacturing, LLC): Sampling events (3/5/09, 8/18/09, 10/27/09) in main plant building. Office painting during March 2009 event. Basement flooded. Standing water observed to continue outside bldg. through northern openings of sump. (March 2009). (Brown and Caldwell/ICE 2009)

March 2009: TCE 9.9 ppbv at B-3. Benzene, 1,1-DCE, cis-1,2-DCE, and toluene were detected. Zone C: 1,1,2-TCA detected, but not in duplicate.

August 2009: TCE 4.6 ppbv at B-3. Methylene chloride, cis-1,2-DCE, benzene, toluene and PCE were detected. Zone C: Benzene 4.3 ppbv, but not detected in duplicate. Toluene 1700 ppbv.

October 2009: Zone C: Benzene, toluene detected.

“Based on the results of the sampling events completed in 2009 and earlier sampling completed in 2003 and 2004, there is no need to continue indoor air sampling at this facility.”

**2011-2015** EPA collected groundwater and soil vapor on edge of the neighborhood.

**June 2015** EPA directed the Facility to conduct environmental sampling in and around the Eastern Heights neighborhood.

**December 2015** EPA requested that the Facility expand the environmental study in Eastern Heights and undertake additional on-site corrective action work. EPA began sampling for contaminants in indoor and outdoor air, groundwater, surface water and soil in the Eastern Heights neighborhood, at the Facility property and surrounding areas.

**March 2016** Facility's second investigation included indoor air and outdoor air sampling in the Eastern Heights neighborhood.

### **Site History**

The plant property occupies land on both the east and west sides of Highway 332. The main portion of the property where the actual manufacturing facilities are located is situated on the east side of Highway 332. Directly across the street on the west side of the highway is a parcel of land on which is situated part of the plant's wastewater treatment facility and an inactive landfill formerly used by the plant. (Textron 1989)

The total plant property covers 56 acres. Most of the manufacturing is conducted in a 231,000 square foot main plant building. Some manufacturing operations are also conducted in an adjacent 12,500 square foot building. There is also a 28,800 square foot finished goods warehouse as well as several smaller structures on the plant property. (Textron 1989)

One lagoon is located near the main plant building and occupies an area of roughly 3 acres. It is used as a wastewater holding or equalization basin. (Textron 1989)

The other lagoon is located on the western portion of the plant property. It is slightly smaller than the former lagoon and is used for the settling and accumulation of wastewater treatment sludge. (Textron 1989)

To the west and south of the sludge lagoon is a former landfill that was used by the plant for the disposal of various manufacturing wastes. (Textron 1989)

Water tower? Water well depth?

The plant and most of the surrounding area obtains its water from wells. While the water table in the area is very near the surface, the plant's wells tap into a deeper aquifer that is over two hundred feet deep. (Textron 1989)

### **Wastewater Treatment System**

The exact age of the wastewater treatment system is unclear. However, the plant believes there is about a twelve-year accumulation of wastewater treatment sludge in the sludge lagoon. This suggests that the wastewater treatment system probably went into operation sometime in the mid-1970s, a time frame that coincides with the implementation of more stringent effluent limitations under the NPDES program. If indeed the current wastewater treatment system only went into operation in the early to mid-1970s

then for at least a tenyear period the plant probably had been discharging either untreated or partially treated wastewater to Riverdale Creek. (Textron 1989)

#### **Potential for Ground Water Contamination from Lagoons**

The plants wastewater treatment system includes two lagoons the wastewater equalization lagoon near the main plant building and the sludge accumulation lagoon at the western part of the plant property. Neither lagoon is equipped with a synthetic liner. (Textron 1989, p. 7)

Therefore, the possibility of chrome containing wastewater infiltrating through the lagoon and into the underlying ground water is a legitimate concern until demonstrated otherwise. The presence of water supply wells in the immediate vicinity of the equalization lagoon, albeit the plants own wells, adds to this level of concern. (Textron 1989, p. 7-8)

The same type of concern over ground water contamination is also valid for the sludge lagoon perhaps even more so due to the larger inventory of chromium. For both lagoons the actual environmental liability can only be determined by monitoring the shallow ground water in the vicinity of the lagoons. (Textron 1989, p.11)

Wastewater Holding Lagoon Sludge - The 1982 delisting petition only addressed the sludge that is disposed into the sludge lagoon. The sludge that accumulates on the bottom of the wastewater holding lagoon was completely excluded from consideration. (Textron 1989, p. 13)

#### **Landfill**

Inactive landfill is believed to have been in operation from approximately 1961 to 1967. (Textron 1989)

Rockwell International Site No 2 landfill (1967-1981) – located several miles away off Route 7 in Grenada. (not owned by plant)

#### **UST**

The plant formerly had five underground storage tanks located on site. One tank was removed in 1986 and the remaining four were removed in 1988. (Textron 1989, p. 15)

The material stored in the five former underground storage tanks included gasoline diesel fuel hydraulic oil and toluene The total combined capacity of the five tanks was 23000 gallons Four of the five tanks were twenty years old or older at the time of their removal. According to the plant some of the tanks visually appeared to be in poor condition at the time of their removal Also the plant evidently ihas had difficulty in matching the quantity of material delivered with the estimated amount of material used However at the time of the tank removal no soil samples were taken from the excavations to check for soil contamination (Textron 1989, p. 16)

#### **AST**

Neither the 5000 gallon TCE storage tank nor the 10000 gallon waste oil tank are furnished with spill containment diking. (Textron 1989, p. 20)

#### **Onsite Wells**

All of the plants water supply including its potable water is obtained from a system of three onsite wells. These wells are annually sampled by the state Board of Health who analyzes the samples only for coliform count. Some additional well water samples were taken several years ago by the Randall Division and tested for metals. (Textron 1989, p. 20) Randall well water metal data?

There is some potential liability associated with the plants water supply wells being situated in close proximity to lagoons that contain chromium other heavy metals and possibly organic constituents. Another potential source area of ground water contamination is the five former underground storage tanks which apparently leaked. Although the wells do not draw water from the shallow aquifer, there currently is no information as to the degree that the deeper aquifer is isolated from the shallow aquifer. If that aquifer were to become contaminated from migration of contaminants from the lagoons or from the former underground storage tanks the plant might have to secure an alternate potable water supply. (Textron 1989, p. 22)

#### **PCB Transformers/Capacitors**

All of the plants PCB equipment is in well protected areas and would appear to pose little risk with respect to releases to the environment. Therefore no liability issues were identified in this area. (Textron, p. 23)

#### **Basement**

Buffing operations were terminated in 2004 and this confined area (i.e., space in which an employee can enter to perform work, has limited or restricted means for entry or exit, and is not designed for continuous occupancy as defined in 29 CFR 1910.146(b)) has not been used since this time. Typically, one of the thirteen previous blowers is still operated to circulate air in the sump and reduce the potential for growth of mold and mildew. The former sump area is not considered occupied or habitable space and is often flooded with surface water entering from outside. (Brown and Caldwell/ICE 2009, p. 2-2)

#### **Operations**

The principal manufacturing operations at the plant consist of metal pressing buffing chrome plating painting and component assembly. (Textron 1989)

In the pressing operation stainless steel sheet is pressed between dies to form the desired shapes of the hubcaps etc. An oil based draw compound is used as a lubricant in the pressing. The freshly pressed parts are then cleaned of the draw compound in a heated alkaline detergent bath prior to being conveyed to the buffing operation. (Textron 1989)

The chrome plating operation consists of several parallel plating lines each of which consists of a series of heated baths. The actual electroplating takes place in a bath containing a chromic acid solution. After the parts are plated they are washed in a series of rinse steps which generate a chromium containing wastewater stream. The plating operation also includes a chromic acid recovery system. (Textron 1989)

The painting operation employs solvent based mostly toluene paints which are applied using a masking device. The masking device must be periodically cleaned in a trichloroethylene TCE bath. Most of the TCE evaporates and is discharged as air emissions. The remaining spent TCE is recovered in a small distillation unit located near the painting area. TCE still bottoms are periodically removed for offsite disposal. (Textron 1989)

Production chemicals are stored in both indoor and outdoor locations TCE is stored in a outdoor aboveground tank Certain drummed chemicals are stored on racks in an outdoor location Most of the remaining production chemicals are stored indoors. (Textron 1989)

Waste oil chiefly consisting of hydraulic oil and draw compound is stored outdoors both in an aboveground tank and in drums. (Textron 1989)

Process and space heat is supplied by four gasfired boilers. Water for the plant is supplied by three onsite wells located in the eastern part of the plant property. Sanitary waste from the plant is discharged into a connection to the municipal sewer system. (Textron 1989)

### **Contaminants of Concern**

According to waste water permit (2/4/1992), chemicals include "total chromium hexavalent chromium total suspended solids copper silver cadmium lead zinc nickel oil grease and total toxic organics". (Textron 1989)

Air: VOCs (Vinyl Chloride, 1,1-Dichloroethene, Methylene Chloride, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene, 1,2-Dichloroethane, Benzene, Trichloroethene, 1,1,2-Trichloroethane, Toluene, Tetrachloroethene)

### **Air Emissions**

Conspicuous by their absence from the permit are all of the major solvent containing emission sources at the plant. The largest of these is the painting operation which emits TCE and toluene. The plant also emits 1,1,1- trichloroethane from general maintenance operations. According to the plants SARA Title III Section 313 filing, which is based on actual material consumption in 1988, the plant emitted to the atmosphere approximately 300,000 lbs of TCE, 178,000 lbs of 1,1,1- trichloroethane and 14,300 lbs of toluene. This represents a total solvent emission rate of roughly 245 tons per year a very substantial amount by any criterion. (Textron 1989, p. 9)

The most likely explanation for this apparent distortion is that the MDNR was operating on incomplete or inaccurate information at the time it wrote the permit. (Textron 1989, p. 9)

There is a requirement in the Mississippi Air Pollution Control Regulations that existing facilities with actual total air contaminant emissions in excess of 025 tons per day have a "Commission approved emission reduction schedule, which shall set forth preplanned abatement strategies in the event an air emergency episode does arise." (APCS2 Section 15) (Textron 1989, p. 10)

During the audit the ERM team observed that the trash incinerator periodically discharged dense black smoke. (Textron 1989, p. 10) Yet when entering the plant on the second day of the audit a distinct odor of burning plastic was detected. (Textron 1989, p. 11)

### **Solvent Usage**

The principal source of the 300,000 lbs per year of TCE emissions is the mask washing step of the painting operation. Based on 250 operating days per year this emission rate translates into the evaporation of over two 55-gallon drums of TCE per day. Because the operation is not very large physically it is very difficult to envision how this much evaporation could be taking place. A thorough technical review of the mask washing operation might identify ways of substantially reducing the rate of TCE evaporation. (Textron 1989, p. 11)

The 178,000 lbs per year of 1,1,1- trichloroethane used in maintenance operations is also difficult to understand because it translates into an average evaporation rate of well over one 55-gallon drum per day. A study of the way in which the solvent is used might identify areas where solvent usage could be significantly reduced without hampering maintenance activities. Along the same lines it is not clear why a halogenated solvent absolutely has to be used for general maintenance purposes. Apart from work on sensitive electrical equipment many maintenance departments of large industrial facilities have been able to successfully limit their solvent usage to mineral spirits only. (Textron 1989, p. 11)



## **Rockwell International Wheel and Trim**

### Background

The Rockwell Grenada site includes the 40-acre facility at 635 Highway 332 (commonly called Grenada Stamping and currently operated by Ice Industries, Inc.), and other areas where site-related contaminants have migrated or were disposed. The Rockwell property encompasses about 76 acres of land, including the main facility (69.5 acres, spanning two parcels, 45.5 acres and 24 acres) and the Moose Lodge Road disposal area (6.7 acres), and is located off of Highway 332 East in Grenada, MS. The Rockwell property is bordered to the north by Eastern Heights, a residential neighborhood, other residential properties, and vacant land; to the east and south by vacant land; and to the west by Riverdale Creek and agricultural land beyond.

Rockwell International, followed by Textron Automotive and later by Grenada Manufacturing, operated a wheel cover manufacturing and chrome plating facility on the property from 1966 to the early 2000s. In 2005, portions of the plant were leased to Ice Industries, which converted the facility to a metal stamping plant that continues to operate today.

Past operations, spills and waste handling practices resulted in air, groundwater, surface water and soil contamination. The solvent trichloroethene (TCE) has been found in the air inside the manufacturing building on-site, groundwater beneath the site, the adjacent Eastern Heights neighborhood, a former disposal area associated with the facility, nearby wetlands and Riverdale Creek.

Since 1980, EPA has been overseeing the cleanup of the facility under the Resource Conservation and Recovery Act (RCRA) program.

On Dec. 29, 2017, a treatment system intended to reduce elevated levels of TCE inside the manufacturing building at the Grenada Stamping facility was restarted under an EPA removal action. (EPA, 2018)

### Sources of potential contamination

Wastes generated at the Rockwell facility include paint waste toluene, spent solvents, chromic acid sludge, TCE still bottoms, electroplating waste waters containing hexavalent chromium, buffing compounds, paint sludge, WTP clarifier sludge, waste oil, metal shavings, and corrosive alkaline wash waters.

The former TCE storage area, the former toluene underground storage tank (UST) area, and the process sewer lines are sources of a VOC plume in soil and groundwater beneath the main plant building, and cracks, joints, and other openings in the concrete floor may provide a conduit for TCE and toluene to vaporize or off-gas from the groundwater or soil and migrate upward into the building.

The former TCE storage area consisted of two aboveground storage tanks (AST) with capacities of 10,000 gallons and 15,000 gallons, as well as associated underground piping that transferred the TCE from the tanks to the main plant building. Reportedly, there was no secondary containment. The tanks were installed in 1973 and removed in the early 1980s after a release of TCE into the subsurface via the

underground piping, resulting in groundwater contamination. The two ASTs were replaced by a new 5,000-gallon steel tank with aboveground piping and secondary containment, which was in operation until 1992, when TCE use was discontinued. In 1993, an automated dense non-aqueous phase liquid (DNAPL) recovery system was installed in the vicinity of the former TCE storage area to remove free-phase solvents present in the underlying groundwater. The automated DNAPL recovery system operated for about 3 years, during which time more than 200 gallons of TCE were removed. Automated recovery ceased in 1996 because the TCE thickness decreased to the point that additional recovery by the system was not beneficial. Recovery of DNAPL continued by manual bailing from 1996 to 2003, when it was decided that no additional free-phase TCE could be recovered. Approximately 39 additional gallons of DNAPL were recovered by manual bailing.

### Media

**Ground Water:** Volatile organic compounds (VOC) and metals contamination was detected in shallow groundwater samples collected throughout the facility and in the adjacent Eastern Heights neighborhood. Neighborhood and facility are on city water.

**Surface Water:** No surface water intakes are located along the 15-mile surface water migration pathway target distance limit (which includes one mile of nearby Riverdale Creek and miles of the Yalobusha River, downstream of their confluence). After a surface water investigation that revealed the presence of VOCs above drinking water standards (including trichloroethene, cis-1,2-dichloroethene, and vinyl chloride), the Mississippi Department of Environmental Quality issued a water contact advisory in October 2015 for the lower segment of Riverdale Creek, extending from the railroad crossing just north of the facility to the creek's confluence with the Yalobusha River.

**Soil:** Metals were detected in soil samples collected from the adjacent Eastern Heights neighborhood north of the facility.

**Air:** Volatile organic compounds (VOC), including cis-1,2-dichloroethene (DCE), toluene, and trichloroethene (TCE), were detected at concentrations significantly greater than background levels in indoor air samples collected from the main plant building, indicating that a release of hazardous substances has occurred. The weight of evidence indicates that the contaminants migrated into indoor air from the subsurface (subsurface intrusion).

VOC contamination was also detected in outdoor air samples collected around the facility.

### Recent Air Sampling Events

**TABLE 3: Analytical Results for Outdoor Air Samples**

Sample ID	Hazardous Substance	Maximum Concentration (µg/m3)	RL (µg/m3)	References
<b>October 2016</b>				
GRMS1026OA001	Toluene	1.2	0.81	31, p. 25; 33, p. 23
GRMS1026OA003	cis-1,2-Dichloroethene	0.68	0.14	31, p. 27; 33, p. 25
GRMS1026OA003	Trichloroethene	3.5	0.14	31, p. 27; 33, p. 25
<b>January 2017</b>				
GRMS0120OA001	cis-1,2-Dichloroethene	0.32U	0.32	32, pp. 39, 336; 34, p. 31
GRMS0120OA001	Toluene	1.5	0.45	32, pp. 39, 336; 34, p. 31
GRMS0120OA002	Trichloroethene	3.02U	3.02	32, pp. 40, 346; 34, p. 32

**TABLE 5: Analytical Results for AOE 1 – 2016 and 2017 Indoor Air Samples**

Sample ID	Hazardous Substance	Concentration (µg/m3)	RL (µg/m3)	References
<b>October 2016 (Compared to October 2016 Background Levels)</b>				
GRMS1026IA0A5	Toluene	10	0.73	31, p. 17; 33, p. 15
GRMS1026IA0B3	cis-1,2-Dichloroethene	3.7	0.14	31, p. 21; 33, p. 19
GRMS1026IA0B3	Trichloroethene	29	0.14	31, p. 21; 33, p. 19
<b>January 2017 (Compared to January 2017 Background Levels)</b>				
GRMS0120IA0A1	Toluene	6.7	0.45	32, pp. 28, 196; 34, p. 19
GRMS0120IA0A5	cis-1,2-Dichloroethene	2.3	0.32	32, pp. 27, 183; 34, p. 18
GRMS0120IA0A5	Trichloroethene	10	0.21	32, pp. 27, 183; 34, p. 18

**TABLE 5: Analytical Results for AOE 1 – 2016 and 2017 Indoor Air Samples**

Sample ID	Hazardous Substance	Concentration (µg/m3)	RL (µg/m3)	References
GRMS0120IA0B1	cis-1,2-Dichloroethene	3.7	0.32	32, pp. 32, 248; 34, p. 23
GRMS0120IA0B3	Toluene	5.1	0.45	32, pp. 34, 273; 34, p. 25
GRMS0120IA0B3	Trichloroethene	81	0.21	32, pp. 34, 273; 34, p. 25

### Community Concerns

#### Health Concerns

Health concerns expressed by community members include cancer, heart disease, kidney disease, skin rashes, asthma and other respiratory issues

#### Other Concerns

Garden produce, drinking water

# Eastern Heights Community Grenada, Mississippi

The Agency for Toxic Substances and Disease Registry (ATSDR), is a federal public health agency headquartered in Atlanta, GA. ATSDR has written this flier to answer your health questions about Trichloroethylene (TCE).



Sub-slab vapor monitoring

## What is Trichloroethylene (TCE)?

Trichloroethylene (TCE) is a nonflammable, colorless liquid with a somewhat sweet odor and a sweet, burning taste. It is used mainly as a solvent to remove grease from metal parts, but it is also an ingredient in adhesives, paint removers, typewriter correction fluids, and spot removers. TCE was once used as an anesthetic for surgery.

## How can breathing trichloroethylene (TCE) affect my health?

The amount of TCE you breathe, how long you breathe TCE, whether other chemicals are present, and your personal traits and habits will affect whether TCE can be harmful to your health. A person's sensitivity to the chemical may also affect whether their health will be harmed.

Non-cancer health effects caused by TCE are:

- Headaches, dizziness and sleepiness caused by nervous system damage
- Liver, kidney or immune system damage.
- Effects to the fetus associated with heart development

## Can breathing trichloroethylene (TCE) cause cancer?

Breathing low levels of TCE over time may pose some additional risk of developing cancer, such as kidney cancer. The increased risk of cancer depends on the amount of TCE you breathe, how long you breathe it, and whether other chemicals are present. A person's sensitivity to the chemical may also affect the risk of cancer.

### If you are exposed to a chemical, will you get sick?

This depends on many factors about the exposure:

- The type of chemical
- How much of a chemical you were exposed to
- How long the exposure was
- How many times you were exposed
- What is your general health
- Are you sensitive to a chemical

ATSDR has made recommendations to

develop guidelines concerning exposure to TCE. Those guidelines include: (continued on back)

- The ATSDR has derived a Minimal Risk Level (MRL) for chronic (greater than 1 year) inhalation exposure to TCE. The MRL value for TCE is 0.004 parts per million (ppm) or 2 micrograms per cubic meter ( $\mu\text{g}/\text{M}^3$ ). This means a person can be exposed to 0.004 ppm TCE for a lifetime without an appreciable risk of adverse non-cancer health effects.
- The EPA has derived a similar value known as an RfC (Reference Concentration). The value of the RfC is the same as ATSDR's MRL or 2  $\mu\text{g}/\text{M}^3$ . EPA interprets this as a level one can be exposed to for a lifetime without adverse health effects.
- The EPA has derived a cancer slope factor for TCE and calculated an estimated unit risk of  $4 \times 10^{-6}$  per  $\mu\text{g}/\text{m}^3$ . This can be used to calculate the number of people estimated to get cancer from a given lifetime exposure. In the case of TCE, if 100,000 people were exposed to 2  $\mu\text{g}/\text{M}^3$  of TCE for their lifetimes (70 years) it would be estimated that 1 additional person would get cancer out of the 100,000 exposed.

### What do we tell our doctors about being exposed to TCE if we are sick?



ATSDR and the Mississippi State Department of Health (MSDH) have given TCE exposure training materials and information to doctors in Mississippi. The materials explain how you can be exposed to TCE, and how it may affect your health. Doctors can call Leann Bing, ATSDR Region 4 office, at 404-562-1784 if they would like to talk to her, or an ATSDR doctor, about TCE exposure and possible health effects.

### What will ATSDR do in the future?

- We will continue to evaluate possible exposures and whether those exposures could result in harmful health effects.
- We will answer health related questions for community members and health care providers.
- We will continue to work with EPA and the MSDH to address public health issues.



### For more information contact:

Leann Bing, Regional Representative  
Office phone: 404-562-1784  
Cell phone: 404-747-4451  
Email: [kbing@cdc.gov](mailto:kbing@cdc.gov)

Dr. John Wheeler, Regional Director, ATSDR Region IV  
Phone: 404-562-1782  
Cell phone: 470-426-9231  
Email: [jzw1@cdc.gov](mailto:jzw1@cdc.gov)

**From:** Brackin, Bruce  
**Sent:** 27 Jul 2016 17:14:23 +0000  
**To:** Newman, Keriema; Wheeler, John; Bing, Leann; Melissa\_Collier@deq.state.ms.us; trey\_hess@deq.state.ms.us  
**Subject:** Slightly revised E Heights paper  
**Attachments:** Eastern Heights Cancer Incidence and Mortality Review - revised.pdf

All - Goggle Earth has a newer and much better image of the Eastern Heights neighborhood. I printed it off and recounted the rooftops/driveways and got 180 homes vs 178 on first try. So I edited the paper to reflect that. Estimated pop went from 175 to 180 (about 2.5 persons per household) so only very minor changes in the person-years and resulting rates. Also added a note about the effect of over or underestimating the population on rates to close things out.

Talk later - Bruce

## Eastern Heights Cancer Incidence and Mortality Review

At the request of the Mississippi Department of Environmental Quality (MDEQ) and the US Agency of Toxic Substances and Disease Registry (ATSDR) the Office of Epidemiology of the Mississippi State Department of Health conducted a review of existing health data for the Eastern Heights neighborhood on the northern edge of the City of Grenada.

The neighborhood is comprised of single family homes located on five (5) well delineated and adjoining streets. Because of the far larger geographical and population makeup of the Census Tract and Block Group that contain the small neighborhood, the exact population of the neighborhood is unknown. From a review of aerial photographs there are 80 homes. The average household size from the 2014 American Community Survey for the Census Tract containing the neighborhood is 2.36 and 2.10 for the smaller Block Group. Utilizing these average household sizes, the population residing in the 80 homes would be estimated to range from approximately 168 to 189. For computational purposes 180 will be used. From information furnished by MDEQ and ATSDR and the American Community Survey, the population is thought to be 100% African American. No data is available about the age distribution of the neighborhood population. The lack of the age makeup will greatly limit the interpretation of all results.

Cancer incidence data were obtained from the Mississippi Central Cancer Registry (CCR) housed with the University of Mississippi Medical Center and mortality data were furnished by Vital Records (VR). Data were requested from each from 2000 through the most current available. The CCR has data through 2013 and VR was able to extract data through the early part of 2015.

There were 17 diagnosed cases of cancers found in the CCR data during 14 years. The VR review obtained a total of 16 death certificates over 15.2 years of which 6 had an underlying cause of death due to cancer. Tables 1 present the obtained cancer incidence data.

Table 1. Cancer Registry 2000-2013 Eastern Heights Neighborhood Cases

Age	Total	Site	Total
<18	<5	Four Major Sites	10
18-64	12	Lung	<5
65+	<5	Breast	<5
Total	17	Colon	<5
		Prostate	<5
Race	Total	Stomach	<5
White	0	Kidney	<5
Black	17	Hematopoietic Diseases	<5
Total	17	Other	<5
		All Sites	17
Sex	Total		
Male	5		



Female	12
Total	17

An entry in Table 1 of "<5" is used by the CCR to preserve confidentiality and is interpreted as meaning there were 1 to 4 cases reported during the time period. Given all the population, cases and deaths were African American, all rates will be specific to them.

Using the estimated population of the area and knowing the time period of risk in years, a crude estimate of the average annual cancer incidence can be calculated. The estimated 180 persons over 14 years would have a total of 2,520 person-years of risk. Given the 17 known cases this would give an average annual incidence rate of 674.6 per 100,000. The crude rate for African Americans in Grenada County for the time period was 531.0 and 571.4 for the state. Confidence intervals can be computed for the rates. Table 2 presents the rates with confidence intervals added.

Table 2. Comparison of estimated cancer incidence rates between the Eastern Heights community and Grenada County for African Americans.

Parameter	Group	
	Eastern Heights (person years)	Grenada Co (11 yr avg)
Population (or person years)	2,520	9,211
Reported Cases	17	49
Incidence Rate/100,000	674.6	531.0
95% Lower Confidence Limit	393.0	392.7
95% Upper Confidence Limit	1,080.1	702.2

As with any small area study or assessment, the confidence intervals are wide. Given the small numbers confidence intervals were computed using Poisson distribution.

Table 3. Death Certificates Filed January 2000 to February 2015, Residents of Eastern Heights

S e x	Age Group	Underlying Cause of Death (ICD10)	Underlying Cause of Death Text	ICD-10 CODES ON THE DEATH CERT.
M	50-59	B457	Disseminated cryptococcosis (B45.7)	B457
F	40-49	C20	Malignant neoplasm of rectum (C20)	C20, C80
F	50-59	C509	Malignant neoplasm of breast, unspecified (C50.9)	J969, C509, J90
M	60-70	C61	Malignant neoplasm of prostate (C61)	J969, A419, N390, N328, C61, I822
M	60-69	C859	Non-Hodgkin's lymphoma, unspecified type (C85.9)	I469, C859
M	50-59	C910	Acute lymphoblastic leukemia (C91.0)	C910
F	60-69	C97	Malignant neoplasms of independent (primary) multiple sites (C97)	J960, C444, C340
F	50-59	D571	Sickle-cell anemia without crisis (D57.1)	D571, I500
F	20-29	D65	Disseminated intravascular coagulation [defibrination syndrome] (D65)	D65, A419 (unspecified septicemia)
F	80-89	G309	Alzheimer's disease, unspecified (G30.9)	G309
F	60-69	I219	Acute myocardial infarction, unspecified (I21.9)	G931, I219
M	40-49	I469	Cardiac arrest, unspecified (I46.9)	I469
M	60-69	I469	Cardiac arrest, unspecified (I46.9)	I469
M	60-69	I609	Subarachnoid hemorrhage, unspecified (I60.9)	I609, I6090
M	80-89	J189	Pneumonia, unspecified (J18.9)	J189
M	80-89	K729	Hepatic failure, unspecified (K72.9)	K7290

In a manner similar to the calculation of the cancer incidence rate, all cause and cancer mortality may be estimated. For this case there would be about 2,736 person years of risk due to the slightly longer period covered. The calculated average annual all cause mortality rate for the neighborhood would be 584.8 per 100,000. The corresponding average crude rate for Grenada County was 1,201.9 and 852.0 for the state. Mortality due to cancer as the underlying cause of death for the community would be estimated at 219.3 and the comparative rate for the whole of Grenada County in blacks was 234.1 while the state rate was 173.1. Table 4 presents the rates with confidence intervals added.

Table 4. Comparison of estimated all cause mortality rates between the Eastern Heights community and Grenada County for African Americans.

Parameter	Group	
	Eastern Heights (person years)	Grenada Co (15 yr avg)
Population (or person years)	2,736	9,413
Reported Cases	16	113
Mortality Rate/100,000	584.8	1,201.9
95% Lower Confidence Limit	334.3	990.6
95% Upper Confidence Limit	949.7	1,444.8

As with the case for cancer incidence, due to small numbers the confidence intervals were computed using Poisson distribution.

Several limitations should be noted in the interpretation of the above information. Most notable is the residential address of record at the time of a diagnosis or death is used to classify a person as being from the neighborhood. It is highly probable some former residents moved to a new location, lived with relatives or were in a nursing home prior to their cancer diagnosis or death and thus would not be counted in their former neighborhood. The converse is also possible whereas a person moved into the neighborhood just shortly before a diagnosis was made or died and would be counted there. This effect has been seen in many situations. Mobility information for the complete Census Block Group that contains the community from the current 2014 American Community Survey indicates that 11.5% of the residents reported living in a different location in the preceding 12 months. If that rate is representative of the Eastern Heights community and holds over time, then approximately one-half (1/2) of the population would be expected to change in just 6 years. This raises a major question about any possible exposure duration.

The overall all cause mortality found for the area is one-half of that expected. If the county average annual rate for African Americans is applied to the person years of experience of the estimated population of 180 persons we would have expected about 33 deaths compared to the 16 observed. The average and median age at death for the 16 from the community is approximately 61 years of age. For all African Americans in Grenada County for the same time period the median is approximately 63 to 64 years of age. The slightly younger age at death coupled with a below expected number of deaths would suggest some former and probably older, residents migrated away from the neighborhood prior to death and thus not reflected in the estimated rate. There is a noticeable deficient of deaths due to heart disease and stroke.

Those two causes are well established to increase in frequency with age and thus underrepresented in the community probably due to the out migration of the older residents.

One added note should be made concerning the estimated population and resulting person-years for the community. If the estimate is low, then the calculated rates would be higher than actual rate. Conversely if the populations estimate is high then the resulting rates would underestimate the true rate.

Prepared by Bruce T. Brackin, MPH, Environmental Epidemiology Consultant, Mississippi State Department of Health, May, 2016 (revised July 27, 2016)

Appreciation is extended to Dick Johnson with MSDH Vital Records and Deirdre Rogers, Director of the Mississippi Central Cancer Registry for supplying needed data, helpful suggestions and review of the results.

**From:** Holtzclaw, Brian  
**Sent:** 8 Mar 2016 18:24:24 +0000  
**To:** kcbodyjr@yahoo.com  
**Cc:** Melissa\_Collier@deq.state.ms.us;karen.walters@msdh.state.ms.us;kgb0@cdc.gov;Anderson, Meredith;Bastek, Brian;Newman, Keriema;Norman, Michael;Braneon, Christian  
**Subject:** U.S. EPA Outreach to Eastern Heights, Grenada, MS  
**Attachments:** Reverend Body Letter - Grenada MS - 030816.pdf, Grenada\_Fact Sheet on Tap Water\_Joint Production of MDoH MDEQ EPA Dated 012116.pdf, Grenada\_EPA\_Fact Sheet No 3\_Jan\_2015\_FINAL.pdf, Grenada - ATSDR Fact Sheet FINAL 01262016.pdf

Reverend K. C. Body, Jr:

As promised, here's our correspondence to you via email. FYI, our hard-copy package mailed today included ~ 40 copies of each of the three (3) attachments (if you need more, please let us know). As you are aware, we formed an EPA outreach team dedicated to Eastern Heights, so feel free to use the contact list to reach any one of us. In the short term, please consider if you and your group's officers would like to schedule a conference call with our outreach team soon. We look forward to working with you, the new Eastern Heights Committee for Justice, and local citizens. Thanks.

Brian L. Holtzclaw, Community Engagement Coordinator  
U.S. EPA, Resource Conservation and Restoration Division  
holtzclaw.brian@epa.gov  
404-821-0697 (work cell); 404-562-8684 (desk)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

March 8, 2016

Reverend K.C. Body Jr.  
Co-Chair, Eastern Heights Committee for Justice  
64 Mondy Road  
Grenada, Mississippi 38901

Subject: U.S. Environmental Protection Agency (EPA) Outreach

Dear Reverend Body:

Thanks for recently taking the time to share about the formation of your new community group with our EPA Team. As mentioned, we have assembled Keriema Newman (Community Outreach Coordinator), Christian Braneon (Environmental Justice Coordinator) and myself (as Community Engagement Coordinator) to be of assistance.

On the topic of the local drinking water, please find attached the Fact Sheet that the EPA distributed at the January 26, 2016 public meeting, with Mississippi State Department of Health (MSDH) and Mississippi Department of Environmental Quality (MDEQ). During our call, you stated to us you did not have an opportunity to pick up the fact sheet. To be of assistance, we are sending you multiple hard-copies in advance of your next meeting of your community group, the Eastern Heights Committee for Justice.

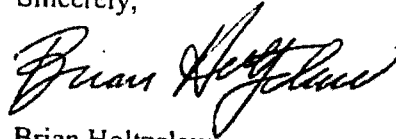
Secondly on this same topic, Ms. Karen Walters of the MSDH Bureau of Public Water Supply indicated to the EPA recently that she would be willing to meet with you and/or your group. Ms. Walters is ready to provide more details of the testing results of the drinking water. Her phone number is 601-576-7518. The EPA suggests that if you have questions about the local water operations, contact Mr. Dale Ratliff, Grenada Water Superintendent at 662-227-3415.

Also, the EPA is attaching multiple copies of our Fact Sheet released at that meeting in case you did not pick this up. To keep you informed, relayed on page 2, under "Next Steps," re-sampling of the 6 homes along Lyon Drive in Eastern Heights was conducted last week in order to obtain another round of seasonal vapor intrusion sampling results. The EPA worked closely with Attorney Reid Stanford's office to schedule this March sampling. We hope to release these results in less than 2 months to the greater community. As a supplement, we are also attaching multiple copies of another handout that our sister health agency, the Agency for Toxic Substances and Disease Registry (ATSDR), released at that same meeting.

Please let our Team know if you'd like us to schedule a conference call with you or your group's officers in the short-term. If it is feasible, we'd like to schedule a face-to-face gathering also with your group's officers in the next 3-6 weeks. That way we can provide you the latest update on local environmental-related work, as well as obtain any community input. On our last call, we shared that the EPA is welcoming any input from the community that can help our investigation. One example is for citizens to share information they may have indicating former dumping or disposal of waste materials in and around the Eastern Heights neighborhood.

We look forward to working with your community group to better understand and address your concerns. Refer to our Outreach Team contact list attached. The EPA collaborates with community groups like yours because we value meaningful community engagement in the communities that we work in. Thank you.

Sincerely,



Brian Holtzclaw  
Community Engagement Coordinator

Enclosures:

Contact Information of Outreach Team Members

"Information about Your Tap Water" Fact Sheet (MDEQ/MDoH/EPA); dated January 2016

"Environmental Study" Fact Sheet #3 (EPA); dated January 2016

"Eastern Heights Community" Flier on Health Questions about Trichloroethylene (ATSDR); dated January 2016

cc: Melissa Collier, Mississippi Department of Environmental Quality (MDEQ)

Leann Bing, Agency for Toxic Substances and Disease Registry (ATSDR)

Karen Walters, Mississippi State Department of Health (MSDH) Bureau of Public Water Supply

Meredith Anderson, EPA

Brian Bastek, EPA

Christian Braneon, EPA

Keriema Newman, EPA

Mike Norman, EPA

**Contact Information: EPA Outreach Team Members for Eastern Heights**

Rev. 1; March 2016

Keriema Newman, Community Outreach Coordinator;

Resource Conservation and Restoration Division; 404-562-8859; [newman.keriema@epa.gov](mailto:newman.keriema@epa.gov)

Christian Braneon, Environmental Justice Coordinator;

Office of Environmental Justice and Sustainability; 404-562-9609, [braneon.christian@epa.gov](mailto:braneon.christian@epa.gov)

Brian Holtzclaw, Community Engagement Coordinator;

Resource Conservation and Restoration Division; 404-821-0697 (cell); [holtzclaw.brian@epa.gov](mailto:holtzclaw.brian@epa.gov)





FACT SHEET

January 2016

## Environmental Study in Eastern Heights, Grenada, Mississippi

### INFORMATION ABOUT YOUR TAP WATER

#### Background:

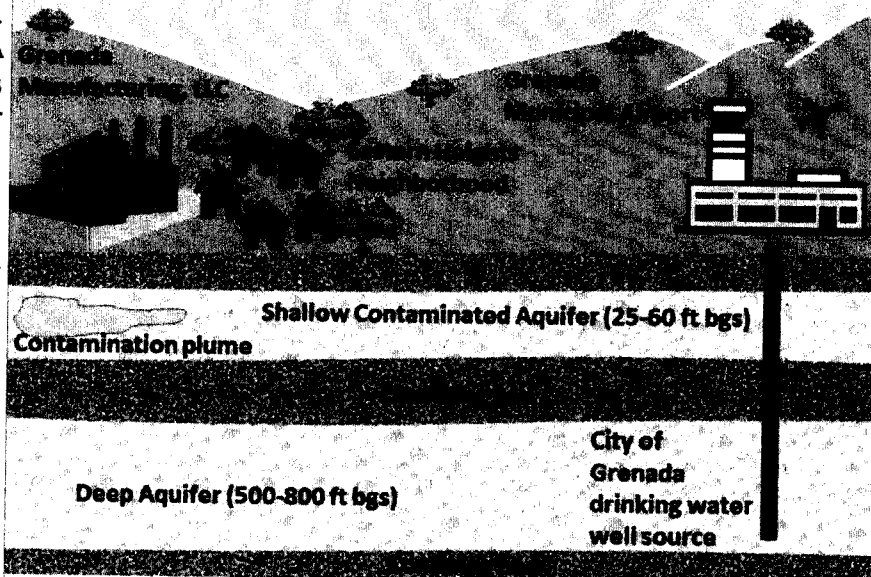
The U.S. Environmental Protection Agency (EPA) is overseeing an environmental study at the Eastern Heights neighborhood in Grenada, MS. By engaging with the community, EPA has determined that the community is concerned about the quality of their drinking water.

EPA is committed to hearing about and addressing the concerns of the community. The EPA Project Manager reached out to the EPA Water Division as well as the Mississippi State Department of Health Bureau of Public Water Supply to share the concerns of the community.

The Project Manager obtained information on the supply of the drinking water for the City of Grenada. This includes sampling reports dating from 2009 to 2015 and the most recent consumer confidence report for the drinking water systems operated by the City of Grenada. These reports are available for the public to review.

#### Where does my water come from?

The drinking water source for the Eastern Heights neighborhood is from an aquifer about 500 feet below ground surface (bgs) and is located north of the Eastern Heights neighborhood, near the Grenada Municipal Airport.



#### What is an "AQUIFER?"

When rain falls to the ground, the water does not stop moving. Some of it flows along the land surface to streams or lakes, some is used by plants. Some evaporates and returns to the atmosphere. And some seeps underground, into pores between sand, clay and rock formations called **aquifers**. Water moves through aquifers much like a glass of water poured onto a pile of sand.

Many communities obtain their drinking water from aquifers. Water suppliers drill wells through soil and rock into aquifers that supply the public with drinking water.

A **confining bed** (or **aquitard**) is a layer of non-porous rock (like clay) that stops the movement of water in and out of aquifers.

For more information refer to Superfund "Fact Flash," an educational tool on groundwater.

[http://www.epa.gov/superfund/students/class\\_act/haz-ed/ff\\_05.htm](http://www.epa.gov/superfund/students/class_act/haz-ed/ff_05.htm)

## **How do you know the water is safe to drink?**

The drinking water sources which supply the Eastern Heights neighborhood in the city of Grenada are located in part of a deeper set of aquifers which run between 500 and 800 feet below ground surface. This deeper aquifer is not connected to the shallower contaminated aquifer located under the facility. The wells supplying Eastern Heights are approximately 500 feet below ground surface. The drinking water is regularly tested, and the sources supplying the Eastern Heights neighborhood have not had a health-based violation in years. The last violations were in 2008 for TTHM (a byproduct when chlorine is used to disinfect water.)

The Mississippi State Department of Health Bureau of Public Water Supply regularly tests the public water supply for a wide range of chemicals and other potential contaminants and parameters. TCE is one of the chemicals that is tested. The sampling results from 2009 to 2015 have revealed **no detection** of TCE in routine sampling of the drinking water supplied to Eastern Heights.

Every year, the City of Grenada Water Department releases an Annual Drinking Water Quality Report that is designed to inform customers about the quality of the water they deliver. They routinely monitor for chemicals in the drinking water according to Federal and State laws. The Annual Report lists all of the drinking water contaminants that were detected from the previous year. In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. All drinking water, including bottled water, may be reasonably expected to contain at least small amounts of some chemicals.

## **Where can I find these reports?**

The Bureau of Public Water Supply has provided sampling results from 2009 forward. The document consists of 250+ pages of laboratory results.

The EPA has also obtained the 2014 Annual Drinking Water Quality Report, which is the latest report that lists all the chemicals that were detected from January 1, 2014 to December 31, 2014. The report states that the drinking water system had no violations, signifying that the drinking water of the City of Grenada meets or exceeds all Federal and State requirements.

These documents are available for review and are being kept in the information repository located at the Elizabeth Jones Library.

## **FOR MORE INFORMATION**

**MS Department of Environmental Quality—Office of Community Engagement: 601-961-5555**

**MS State Department of Health - Bureau of Public Water Supply: 601-576-7518**

**EPA Community Engagement Coordinator: 404-821-0697**

**Information Repository: Elizabeth Jones Library, 1050 Fairfield Avenue, Grenada, MS 38902.**



# FACT SHEET

EPA Region 4  
Resource Conservation and Recovery Act  
Corrective Action Program

Number 3

January 2016

## Environmental Study in Eastern Heights, Grenada, Mississippi

### PUBLIC MEETING\*

January 26, 2016

6 to 8 p.m.

GRENADA CITY HALL AUDITORIUM

17 N. Main Street, Grenada, MS

\* A Meet and Greet session with the agencies will be held from 2 to 4 p.m. for individuals who are not able to attend the public meeting.

### Background:

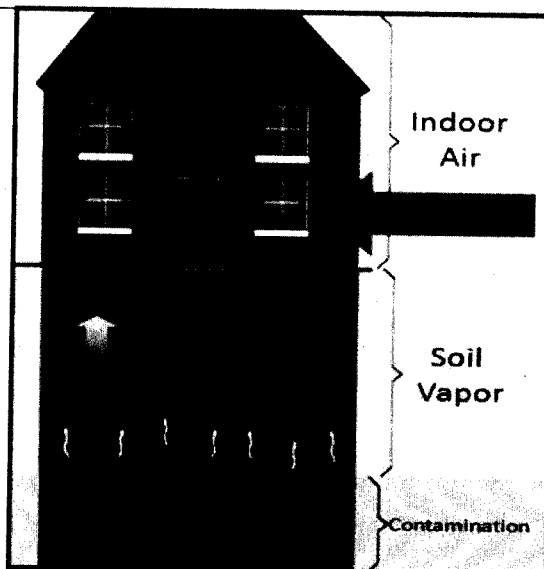
In September/October 2015, EPA oversaw sampling (on behalf of Grenada Manufacturing, LLC) of the indoor air, outdoor air, and groundwater in the Eastern Heights neighborhood in Grenada, Mississippi. Based on the sampling results thus far, **EPA has determined that there is no immediate concern for public health, but that additional investigations are needed.** The sampling done in the homes was necessary to evaluate whether contamination, primarily the solvent, TCE, may be entering structures in the form of a gas (or vapor) from contamination below ground (also referred to as "vapor intrusion;" see Figure 1) or from another source.

### Findings from the Environmental Study:

Six homes were part of the initial vapor intrusion investigation. Air samples were collected from the sub-slab (under the foundation of the homes; see photograph on Page 2) and indoors. The results from the sampling inside the homes detected TCE above screening levels but below levels that require a response action (see text box on page 2). However, since the results were above screening levels, additional sampling at these locations is warranted.

Outside air samples referred to as "ambient air" were also collected outside of the homes. The TCE concentrations detected in the ambient air also exceeded EPA screening levels but, at this time, are also below levels that require a response action. Because the ambient air sampling detected levels of TCE above screening levels, EPA is currently collecting more ambient air samples in the area to help determine any sources.

Groundwater samples were collected at 10 locations throughout the Eastern Heights neighborhood. The results showed TCE contamination in the groundwater at 15 to 50 feet below ground surface (generally within the southern part of the neighborhood). Additional groundwater sampling will be conducted to further identify the full extent of this contamination.



**Figure 1:** "Vapor intrusion" is the movement of chemicals in the soil or groundwater that become a gas easily and can travel into the indoor air of overlying buildings through joints, cracks in the foundation, around pipes, or through a sump or drain system. These chemicals include those called volatile organic compounds (VOCs), such as trichloroethylene (TCE), which is a contaminant at the Grenada Manufacturing, LLC site.

**Refer to Fact Sheet "What You Should Know About Vapor Intrusion" for more information.**

[http://www.epa.gov/region02/superfund/npl/dover/vapor\\_intrusion\\_eng\\_030807.pdf](http://www.epa.gov/region02/superfund/npl/dover/vapor_intrusion_eng_030807.pdf)

### What do these results mean?

The results from the initial air sampling indicate that TCE does not appear to be entering homes in the form of a gas from contaminated groundwater below the homes, however, additional vapor intrusion samples need to be collected to confirm this observation. Rather, the results suggest that there may be an unknown source that is releasing low levels of TCE into the ambient air, which is being detected within indoor air as well. The outdoor air (with low levels of TCE) may be coming inside the homes through infiltration (outdoor air flowing through openings, joints and cracks in walls) and natural ventilation (air moving through open windows and doors).

The groundwater sampling results show that there is contaminated groundwater in the southern portion of the Eastern Heights neighborhood. As a precautionary measure, EPA will be seeking access to more homes for inclusion in a second investigation to evaluate whether TCE may be entering those homes in the form of a gas from contamination below ground.

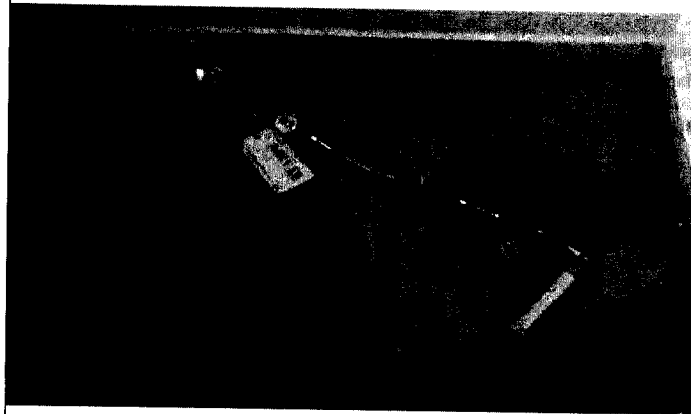
### Next Steps:

- **Additional Sampling in Homes:** EPA plans to conduct a second round of vapor intrusion sampling (sub-slab and indoor/ambient air) at the six homes that were initially tested. Additional homes in the southern part of the neighborhood will also be sampled.
- **Ambient Air Investigation:** Outdoor (ambient) air sampling in the neighborhood, at the nearby facility and in the surrounding area was initiated in mid-January to identify the source of the low levels of TCE in the outdoor air. Additional ambient air sampling may occur in the next few months.
- **Treatment/Cleanup Plan:** A strategy for controlling and treating the contaminated groundwater under the neighborhood is being developed, so that the groundwater near and under the neighborhood will be remediated.
- **Public Health Concerns:** Communicate with your physician about any health concerns you might have. If necessary, your physician can contact Leann Bing, Regional Representative for the Agency for Toxic Substances and Disease Registry (ATSDR) at 404-562-1784 or at [bing.leann@epa.gov](mailto:bing.leann@epa.gov). ATSDR representatives can provide your physician with specific information on TCE and will put them in touch with national health experts.
- **Public Meeting:** EPA, Mississippi Department of Environmental Quality (MDEQ) and the ATSDR plan to conduct a public meeting on **Tuesday, January 26th from 6 to 8 p.m.** to provide an update on the ongoing environmental study. A Meet and Greet session will be held from 2 to 4 p.m. to accommodate individuals who are not able to attend the evening public meeting. Representatives from the above-mentioned agencies will be available during the afternoon session to meet one-on-one and answer questions. No formal presentation will be given during the earlier Meet and Greet session. Both sessions will be held at the Grenada City Hall Auditorium.

### What is the difference between "Screening Levels" and "Action Levels?"

**Screening levels** are values used by EPA to help determine if a contaminant should be considered for further evaluation. A value above a screening level does not necessarily mean that there is an unacceptable risk or hazard from exposure to the contaminant. A sample result higher than a screening level does not imply that adverse health effects will occur.

**Action levels** are values used by EPA to help identify areas, contaminants, and conditions where an action may be necessary to protect public health and/or the environment. These actions can vary depending on the contaminant and the concentration. For TCE in indoor air, these actions could include interim steps to lessen exposure, such as sealing cracks in the foundation, indoor air monitoring, and use of air filtration devices, among other alternatives. A sample result higher than an action level does not imply that adverse health effects will occur.



**Above:** Sub-slab air sampling location within Eastern Heights Subdivision.

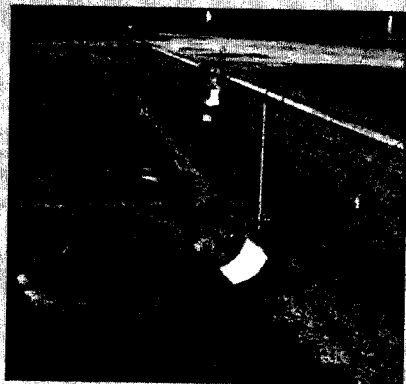
### Contact EPA Region 4 Representatives for more information:

**Keriema Newman**, 404-562-8859, 404-304-2490 (cell) or [newman.keriema@epa.gov](mailto:newman.keriema@epa.gov), **Outreach Coordinator**

**Brian Holtzclaw**, 404-562-8684, 404-821-0697 (cell) or [holtzclaw.brian@epa.gov](mailto:holtzclaw.brian@epa.gov), **Community Engagement Coordinator**

**Brian Bastek**, 404-562-8511 or [bastek.brian@epa.gov](mailto:bastek.brian@epa.gov), **Technical Project Manager**

# Eastern Heights Community Grenada, Mississippi



**If you are exposed to a chemical, will you get sick?**

## **What is Trichloroethylene (TCE)?**

Trichloroethylene (TCE) is a nonflammable, colorless liquid with a somewhat sweet odor and a sweet, burning taste. It is used mainly as a solvent to remove grease from metal parts, but it is also an ingredient in adhesives, paint removers, typewriter correction fluids, and spot removers. TCE was once used as an anesthetic for surgery.

## **How can breathing trichloroethylene (TCE) affect my health?**

The amount of TCE you breathe, how long you breathe TCE, whether other chemicals are present, and your personal traits and habits will affect whether TCE can be harmful to your health. A person's sensitivity to the chemical may also affect whether their health will be harmed.

Non-cancer health effects caused by TCE are:

- Headaches, dizziness and sleepiness caused by nervous system damage
- Liver, kidney or immune system damage
- Effects to the fetus associated with heart development

## **Can breathing trichloroethylene (TCE) cause cancer?**

Breathing low levels of TCE over time may pose some additional risk of developing cancer, especially kidney cancer. The increased risk of developing cancer depends on the amount of TCE you breathe, how long you breathe TCE, personal traits and habits, and whether other chemicals are present. A person's sensitivity to the chemical may also affect the risk of developing cancer.

## **Has the federal government made recommendations to protect human health?**

There are several government guidelines concerning exposure to TCE. Those most applicable to residential inhalation exposures include:  
(continued on back)

- The ATSDR has derived a Minimal Risk Level (MRL) for chronic (greater than 1 year) inhalation exposure to TCE. The MRL value for TCE is 0.004 parts per million (ppm) or 2 micrograms per cubic meter ( $\mu\text{g}/\text{M}^3$ ). This means a person can be exposed to 0.004 ppm TCE for a lifetime without an appreciable risk of adverse non-cancer health effects.
- The EPA has derived a similar value known as an RfC (Reference Concentration). The value of the RfC is the same as ATSDR's MRL or 2  $\mu\text{g}/\text{M}^3$ . EPA interprets this as a level one can be exposed to for a lifetime without adverse health effects.
- The EPA has derived a cancer slope factor for TCE and calculated an estimated unit risk of  $4 \times 10^{-6}$  per  $\mu\text{g}/\text{m}^3$ . This can be used to calculate the number of people estimated to get cancer from a given lifetime exposure. In the case of TCE, if 100,000 people were exposed to 2  $\mu\text{g}/\text{M}^3$  of TCE for their lifetimes (70 years) it would be estimated that 1 additional person would get cancer out of the 100,000 exposed.

### What do we tell our doctors about being exposed to TCE if we are sick?



If you are sick and believe you were exposed to TCE, tell your doctor about your exposure and symptoms. ATSDR and the Mississippi State Department of Health (MSDH) have given TCE exposure training materials and information to doctors in Mississippi. The materials explain how you can be exposed to TCE, and how it may affect your health. Doctors can call Leann Bing, ATSDR Region 4 office, at 404-562-1784 if they would like to talk to her, or an ATSDR doctor, about TCE exposure and possible health effects.

### What will ATSDR do in the future?

- We will continue to evaluate data when asked.
- We will answer health related questions for community members and health care providers.
- We will continue to work with EPA and the MSDH to address public health issues.



**From:** [Bing, Leann](#)  
**To:** [scasteel@cdc.gov](mailto:scasteel@cdc.gov)  
**Cc:** [jwheeler1@cdc.gov](mailto:jwheeler1@cdc.gov)  
**Subject:** Updated communication plan  
**Date:** Monday, January 29, 2018 9:38:00 AM  
**Attachments:** [Rockwell Intl Wheel & Trim Grenada Stamping FS V1 01292018.docx](#)  
[Communication Plan - Eastern Heights Community Health Consultation DRAFT 01252018.docx](#)

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Hi Sue,

Attached is the updated draft communication plan and fact sheet for Rockwell Wheel & Trim/Grenada Manufacturing.

**Leann Bing**

ATSDR Region IV Representative

**Agency for Toxic Substances and Disease Registry (ATSDR)**

[61 Forsyth St. SW](#) (9<sup>th</sup> Floor Mail only)

[Atlanta, GA 30303](#)

[404.562.1784](#)

[404.747.4451](#) (cell)

[KBing@cdc.gov](mailto:KBing@cdc.gov)

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**ATSDR**

<http://www.atsdr.cdc.gov/>

**ATSDR Brownfield/Land Reuse Health Initiative**

[ATSDR.LandReuse@cdc.gov](mailto:ATSDR.LandReuse@cdc.gov)

<http://www.atsdr.cdc.gov/sites/brownfields/index.html>

**From:** Holtzclaw, Brian  
**Sent:** 17 Mar 2016 20:16:44 +0000  
**To:** Bing, Leann  
**Cc:** Newman, Keriema  
**Subject:** Urgent  
**Attachments:** Grenada Stamping FS V1 1 25 16.docx, ATT00001.htm

Leann: please indicate your permission to post your Jan ATSDR fact sheet ... On a new Grenada web page ... ASAP. Thanks ! Brian

Sent from my iPhone

Begin forwarded message:

**From:** "Marraccini, Davina" <[Marraccini.Davina@epa.gov](mailto:Marraccini.Davina@epa.gov)>  
**To:** "Cashin, Mary" <[Cashin.Mary@epa.gov](mailto:Cashin.Mary@epa.gov)>, "Maddox, Sherry" <[Maddox.Sherry@epa.gov](mailto:Maddox.Sherry@epa.gov)>  
**Cc:** "Holtzclaw, Brian" <[Holtzclaw.Brian@epa.gov](mailto:Holtzclaw.Brian@epa.gov)>, "Newman, Keriema" <[Newman.Keriema@epa.gov](mailto:Newman.Keriema@epa.gov)>, "Lincoln, Larry" <[Lincoln.Larry@epa.gov](mailto:Lincoln.Larry@epa.gov)>  
**Subject:** FW: another fact sheet

Mary and Sherry,

Can we post another agency's fact sheet on our site? ATSDR created this specifically for residents in Grenada. Brian has reached out to the author in order to try to obtain their permission.

Davina Marraccini  
Public Affairs Specialist  
U.S. EPA Region 4  
404-562-8293 (office)  
404-387-4368 (cell)  
404-562-8335 (fax)  
[marraccini.davina@epa.gov](mailto:marraccini.davina@epa.gov) <<mailto:marraccini.davina@epa.gov>>

\*\*\* Save trees! Please don't print this message unless necessary.

From: Newman, Keriema  
Sent: Thursday, March 17, 2016 4:00 PM  
To: Marraccini, Davina  
Cc: Holtzclaw, Brian  
Subject: another fact sheet



Another ATSDR Fact sheet for inclusion.

Keriema Smith Newman, ENVIRONMENTAL ENGINEER  
Land Revitalization and Outreach Coordinator  
United States Environmental Protection Agency – Region 4  
Resource Conservation and Restoration Division  
61 Forsyth Street S.W.  
Atlanta, Georgia 30303

• [newman.keriema@epa.gov](mailto:newman.keriema@epa.gov) | <mailto:newman.keriema@epa.gov> •  
(404) 562.8859 | facsimile: (404) 562.8439 | mobile phone: (404) 304.2490

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# Eastern Heights Community Grenada, Mississippi

The Agency for Toxic Substances and Disease Registry (ATSDR), is a federal public health agency headquartered in Atlanta, GA. ATSDR has written this flier to answer your health questions about Trichloroethylene (TCE).



Sub-slab vapor monitoring

## What is Trichloroethylene (TCE)?

Trichloroethylene (TCE) is a nonflammable, colorless liquid with a somewhat sweet odor and a sweet, burning taste. It is used mainly as a solvent to remove grease from metal parts, but it is also an ingredient in adhesives, paint removers, typewriter correction fluids, and spot removers. TCE was once used as an anesthetic for surgery.

## How can breathing trichloroethylene (TCE) affect my health?

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Non-cancer health effects caused by TCE are:

- Headaches, dizziness and sleepiness caused by nervous system damage
- Liver, kidney or immune system damage.
- Effects to the fetus associated with heart development

## Can breathing trichloroethylene (TCE) cause cancer?

Breathing low levels of TCE over time may pose some additional risk of developing cancer, such as kidney cancer. The increased risk of cancer depends on the amount of TCE you breathe, how long you breathe it, and whether other chemicals are present. A person's sensitivity to the chemical may also affect the risk of cancer.

**If you are exposed to a chemical, will you get sick?**

This depends on many factors about the exposure:

- The type of chemical
- How much of a chemical you were exposed to
- How long the exposure was
- How many times you were exposed
- What is your general health
- Are you sensitive to a chemical

ATSDR has made recommendations to

develop guidelines concerning exposure to TCE. Those guidelines include: (continued on back)

- The ATSDR has derived a Minimal Risk Level (MRL) for chronic (greater than 1 year) inhalation exposure to TCE. The MRL value for TCE is 0.004 parts per million (ppm) or 2 micrograms per cubic meter ( $\mu\text{g}/\text{M}^3$ ). This means a person can be exposed to 0.004 ppm TCE for a lifetime without an appreciable risk of adverse non-cancer health effects.
- The EPA has derived a similar value known as an RfC (Reference Concentration). The value of the RfC is the same as ATSDR's MRL or 2  $\mu\text{g}/\text{M}^3$ . EPA interprets this as a level one can be exposed to for a lifetime without adverse health effects.
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### What do we tell our doctors about being exposed to TCE if we are sick?



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### What will ATSDR do in the future?

- We will continue to evaluate data when asked.
- We will answer health related questions for community members and health care providers.
- We will continue to work with EPA and the MSDH to address public health issues.



### For more information contact:

Leann Bing, Regional Representative  
Office phone: 404-562-1784  
Cell phone: 404-747-4451  
Email: [kbing@cdc.gov](mailto:kbing@cdc.gov)

Dr. John Wheeler, Regional Director, ATSDR Region IV  
Phone: 404-562-1782  
Cell phone: 470-426-9231  
Email: [jzwl@cdc.gov](mailto:jzwl@cdc.gov)